



Nomenclatural notes on the lesser horseshoe bat, *Rhinolophus hipposideros* (Mammalia: Chiroptera)

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Abstract: The oldest nomenclatural history of the lesser horseshoe bat (*Rhinolophus hipposideros*) is summarised and discussed. Our search of literature showed that the author of the species name *Rhinolophus hipposideros* is André (1797); in the work *Der Zoologe, oder Compendiöse Bibliothek des wissenschaftlichsten aus der Thiergeschichte und allgemeinen Naturkunde* published by 19 April 1797, André (1797: 65) used the name *Noctilio Hipposideros* and labelled it with “mihi”. André’s (1797) work takes priority over *Deutsche Fauna oder kurzgefaßte Naturgeschichte der Thiere Deutschlands* by Borkhausen (1797) to which the creation of the name *Noctilio Hipposideros* has been attributed; the publication date of the latter work for the purposes of zoological nomenclature is 30 September 1797. Revised dating is provided for the second volume of Bechstein’s translation of Pennant’s *History of Quadrupeds* to which the description of *Rhinolophus hipposideros* was also formerly assigned: *Thomas Pennant’s allgemeine Uebersicht der vierfüßigen Thiere*. It is shown to be published by 6 October 1799, although the book bears a title-page date 1800.

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Introduction

The lesser horseshoe bat, *Rhinolophus hipposideros*, is a small bat of the family Rhinolophidae Gray, 1825[b] and the smallest representative of the family in Europe and the western Palearctic as well. It is a widespread bat of the Mediterranean region and temperate Europe (Roer & Schober 2001, Csorba et al. 2003, Burgin 2019); the range of *R. hipposideros* covers the southern part of Europe from Portugal, Ireland and Germany to western and southern Ukraine, the Balkans and Caucasus, the Mediterranean belt of North Africa from Morocco to Tripolitania, many of the Mediterranean islands, and in Asia it stretches from Anatolia, via the Levant (including Sinai and Cyprus), Iran, Afghanistan, and West Turkestan to Kashmir. However, this bat also marginally extends to the Afrotropics, it occurs in south-western Arabia, Eritrea, Djibouti, Ethiopia, and the Sudan. In southern Europe and the Levant, it represents one of the most common bat in majority of habitats, at altitudes from the sea coast to high mountains (see e.g. Mendelssohn & Yom-Tov 1999, Hanák et al. 2001, Palomo

& Gisbert 2002, Benda et al. 2003, 2016, 2019). Although *R. hipposideros* belongs to the most common and, thus, also the most frequently mentioned bat species of Europe, its nomenclature was confused for a long time.

Author and date of description of *Rhinolophus hipposideros*

The name and the author and year of description of the lesser horseshoe bat was stabilised in the second half of the 19th century by Blasius (1857). Before that, the lesser horseshoe bat was variably called *Rhinolophus hippecrepis* (Schrank, 1798) [which in fact is a synonym of *R. ferrumequinum* (Schreber, 1774)], *R. bihastatus* Geoffroy, 1813 or *R. hipposideros* (see e.g. Oken 1816, Desmarest 1820, Gray 1825a, 1838, 1843, Fischer 1829, Fitzinger 1832, Lesson 1834, Presl 1934, Kaup 1835, Temminck 1835, Bonaparte 1837, von Keyserling & Blasius 1839, 1840, Koch et al. 1840, Wagner 1840, 1855, Blasius 1853, Kolenati 1856, Loche 1858).

Blasius (1857: 29) attributed *hipposideros* to “Bechst. Naturg. Deutschl. p. 1194” (= Bechstein 1801: 1194), who published it in the binomen *Noctilio Hipposideros* [sic]. For the next fifty years, this attribution was generally accepted (e.g., Kolenati 1860, Koch 1865, Fitzinger 1870, Peters 1871, Dobson 1876, 1878, Trouessart 1879, 1897, Anderson 1881, Doria 1887, Méhely 1900, Cabrera 1904, Schäff 1911).

Sherborn (1902: 460) traced this species name back to Bechstein (“1800” [= 1799b]), who used it in the combination *Vespertilio Hipposideros* (pp. 615, 629) and *Noctilio Hipposideros* (p. 736), and this source (“Bechstein 1800: 629”) was broadly accepted as the original description of *R. hipposideros* in subsequent decades (e.g., Andersen 1905, Miller 1912, Ognev 1928, Kostroň 1943, Kuzâkin 1950, Ellerman & Morrison-Scott 1951, Bogdanov 1953, Frechkop 1958, Lanza 1959, Harrison 1964, Lay 1967, Sinha 1973, Atallah 1977, Corbet 1978, DeBlase 1980, Qumsiyeh 1985, 1996, Pavlinov & Rossolimo 1987, Harrison & Bates 1991, Corbet & Hill 1992, Bates & Harrison 1997, Mendelssohn & Yom-Tov 1999, Horáček et al. 2000, Tupinier 2001, Simmons 2005, Ghosh 2008, Racey 2008, Choudhury 2016, Murariu et al. 2016).

Tupinier (2001) suggested that Bechstein published the name *hipposideros* in 1799. However, the book by Bechstein (1799a) mentioned by Tupinier (2001) as the work in which the name was published, is the first volume of a two-volume set of Bechstein’s translation of Pennant’s *History of Quadrupedes*. Bats are included in the second volume, which bears a title-page date 1800, and was generally dated from 1800 in literature. However, Anonymous (1799a: col. 665) announced that the second volume will be published by the Michaelismesse, i.e. the Leipzig Book Fair, which started on 6 October 1799 (Evenhuis 2014). Indeed, the relevant catalogue of books (Anonymous 1799b: 337) listed the work as published by that time. This is good evidence that the second part of Bechstein’s work was published by 6 October 1799, and this date should be used for the purposes of zoological nomenclature. Thus, Bechstein (1799b) indeed published the name *hipposideros* in 1799.

Moreover, Tupinier (2001) and independently also Kožurina (2006) suggested that the species name *hipposideros* was first introduced by Borkhausen (1797: 85), who used it in the combination *Noctilio Hipposideros*. Indeed, Borkhausen (1797: 85) provided a simple description of the bat (for details see also Kožurina 2006: 43), and thus could be the author of *hipposideros*. The nomenclatural authority of Borkhausen (1797) over *R. hipposideros* has been nowadays accepted by various authors (e.g. Benda et al. 2008, 2010, 2012, 2016, 2019, Karataş & Sachanowicz 2008, Anděra & Gaisler 2012, Kruskop 2012, Dieterlen et al. 2013, Lino et al. 2014, Downs et al. 2016, Burgin 2019, Akmali et al. 2022, Benjeddou et al. 2022).

However, our search of literature showed that the species name *hipposideros* in the meaning of the lesser horseshoe bat was also used in another work published in 1797, in a short-lived quasi-periodical *Der Zoologe*, published and written by Christian Carl André (1763–1831), German naturalist and educator. André (1797: 65) used the name *Noctilio Hipposideros*, labelling it with “mihi”, providing a detailed description of the species, and referring to four previous authors who mentioned this bat under various names (Schreber 1774, Gmelin 1788, Bechstein 1789, Goeze 1791). (The genus name *Noctilio* was described

by Linnaeus (1766: 88); the type species of this genus is *Noctilio americanus* Linnaeus, 1766: 88 [= *Vespertilio leporinus* Linnaeus, 1758: 32].)

Available data show that André (1797) was published earlier than Borkhausen (1797). André's work was published by 19 April 1797, when it was recorded among published works presented at the Leipzig Book Fair (Anonymous 1797a: 20; for the date see Evenhuis 2014). As regards Borkhausen's work, we found the first records of his book in Baldinger (1797: 45) and Gerhard (1797: vi), which confirm that the work was published in 1797. Gerhard's work was presented at the Leipzig Book Fair which started on 1 October 1797 (Anonymous 1797b: 331, Beygang 1797: col. 742; for the date see Evenhuis 2014). This means that Borkhausen's work was published before that date. Borkhausen (1797: xiv) signed the preface to his book in April 1797, which means that it was certainly published after March 1797, and probably after April 1797. Thus, the official publication dates for the purposes of zoological nomenclature (ICZN 1999: Art. 21) are 19 April 1797 for André (1797), and 30 September 1797 for Borkhausen (1797), and André's work takes priority over that by Borkhausen.

André's (1797) priority over Borkhausen (1797) is supported by the fact that André (1797) labelled the species name with "mihi", while Borkhausen (1797) did not. André (1797) added the word "mihi" (meaning 'of mine') to five names of mammal species, either created originally by him (*Sorex cunicularius* [p. 25], *Vespertilio Myosotis* [p. 46], *Noctilio Hipposideros*) or mentioned in a new (particularised) taxonomic meaning upon the previously considered (*Vespertilio murinus* [p. 49], *Noctilio ferrum equinum* [p. 62]).

André's (1797) work is less known, so we provide here his detailed description of the species (André 1797: 65–66): "Die kleine Hufeisennase, mit einer hufeisenähnlichen Nase, nur zwey Säugwarzen auf der Brust, hellaschgrauem Rücken, und schmutzigweißem Bauche. // Diese kleinere Fledermaus, bey welcher die Länge des Körpers 1 Zoll 8 Linien, die des Schwanzes 1 Zoll beträgt, und die Flügel nur 9 Zoll klastern, unterscheidet sich eben so gut als Art von der vorhergehenden, wie das kleine von dem großen Mäuseohr, die kleine von der großen Speckmaus, das kleine von dem großen Wiesel; denn man findet beide zu allen Jahreszeiten in der Größe und Farbe, und als Männchen und Weibchen verschieden, und letzteres hat bey dieser kleinen Art standhaft nur zwey Säugwarzen auf der Brust, da jenes noch zwey am Bauche hat. Uebrigens kommt diese kleinere Art, die horizontale Lage der hintern häutigen Nasentheile etwa noch ausgenommen, in allen Stücken mit der größeren überein. Sie liebt eben den Aufenthalt, wird häufig in jener Gesellschaft angetroffen, pflanzt sich eben so fort, doch allezeit mit ihres Gleichen und nicht mit der größeren Art gepaart."

Thus, the author of the species name *hipposideros*, as published in the binomen *Noctilio hipposideros*, is André (1797). The assignations of the authorship of this species name to Borkhausen (1797) or Bechstein (1799b ["1800"], 1801) are erroneous.

Notes on other relevant names

The *hipposideros* of André (1797) is antedated by *minor* of Kerr (1792) for the lesser horseshoe bat. Kerr (1792: 99) used the name in the trinomial *Vesp[ertilio] fer[rum]-equ[inum] minor*. Kerr (1792) is an updated translation of the mammalogical part of Gmelin (1788), where this form was listed as "Vespertilio Ferrum equinum β . minor" (Gmelin 1788: 50). This looks like a trinomen and as such, it was mentioned by numerous authors (e.g., André 1797: 65; Borkhausen 1797: 85; Bechstein 1801: 1194; Geoffroy 1803: 57; Oken 1816: 922; Bonaparte 1837: [109]; Fitzinger 1870: 150; Andersen 1905: 141). However, Gmelin (1788) always placed subspecific names at the left margin of a page *before* the Greek letter he used for labelling infraspecific forms (both formally named and not named). Thus, Gmelin's (1788) "minor" is a descriptive term (meaning 'smaller'), not a zoological name. Kerr's *minor* (for the lesser horseshoe bat) is available for the purposes of zoological nomenclature, because it is accompanied by a description plus a reference to Schreber (1774: 174, pl. lxii, lower figure).

Vespertilio ferrumequinum minor Kerr, 1792: 99 competes for priority with *Vespertilio molossus minor* Kerr, 1792: 97, now a synonym of *Molossus molossus* (Pallas, 1766) (Molossidae;

see e.g. Freeman 1981: 157; Simmons 2005: 441; or Loureiro et al. 2018: 438). Pavlinov & Rossolimo (1987: 33), acting as First Revisers (ICZN 1999: Art. 24.2), gave *minor* Kerr (p. 97) priority over *minor* Kerr (p. 99). Due to this, *Vespertilio ferrumequinum minor* Kerr, 1792 became a junior primary homonym of *Vespertilio molossus minor* Kerr, 1792, and as such is invalid.

Geoffroy (1803: 57) called the lesser horseshoe bat *Rhinolophus minor*. He did not cite Kerr (1792), but he did cite Gmelin (1788). Thus, his *Rhinolophus minor* is nomenclaturally independent from *Vespertilio ferrumequinum minor* Kerr, 1792. It is a junior subjective synonym of *Rhinolophus hipposideros* (André, 1797), and a senior homonym of *Rhinolophus minor* Horsfield, 1823 (see e.g. Corbet & Hill 1992: 98; Hendrichsen et al. 2001: 66; Csorba et al. 2003: 110; Simmons 2005: 361).

Some Russian authors (Satunin 1914: 11, 1915: 18; Ognev 1928: 400; Kuzâkin 1950: 208; Strelkov 1981: 32) attributed name *Rhinolophus hipocrepsis* var. *minor* to Pallas (1811: 125). However, Pallas (1811: 125) only said “Minorem varietatem *Cel. Gûldenstaedt* in antris rupium et aedificiis desertis [...]”, i.e. “A smaller variety met by Celebrated Gûldenstaedt in rock caves and desert buildings [...]”. No name “*minor*” was used by Pallas (1811) for this bat species.

In addition, *Vespertilio minor* Brisson (1762: 160) and *Vespertilio minor* Fermin (1765: 9) were published in non-binominal works, and are thus not available for nomenclatural purposes.

ZooBank

<http://zoobank.org/urn:lsid:zoobank.org:pub:1B2859E9-B516-448E-8B0F-4F4DFD8853DE>

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