Even old names can be new: changes in mammalian nomenclature since 2005

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The Hesperomys Project

- Long-term hobby project (since around 2004)
- Goal: collect nomenclature data for mammals in one place
  - And some other animals
  - Both fossil and extant
- >102,000 names, >42,000 type specimens, >58,000 type localities
  - ~77% are mammals, ~41% are extant mammals
- Public at https://hesperomys.com/
- Since 2023, collaborating with the Mammal Diversity Database (MDD)

Past mammal nomenclature datasets

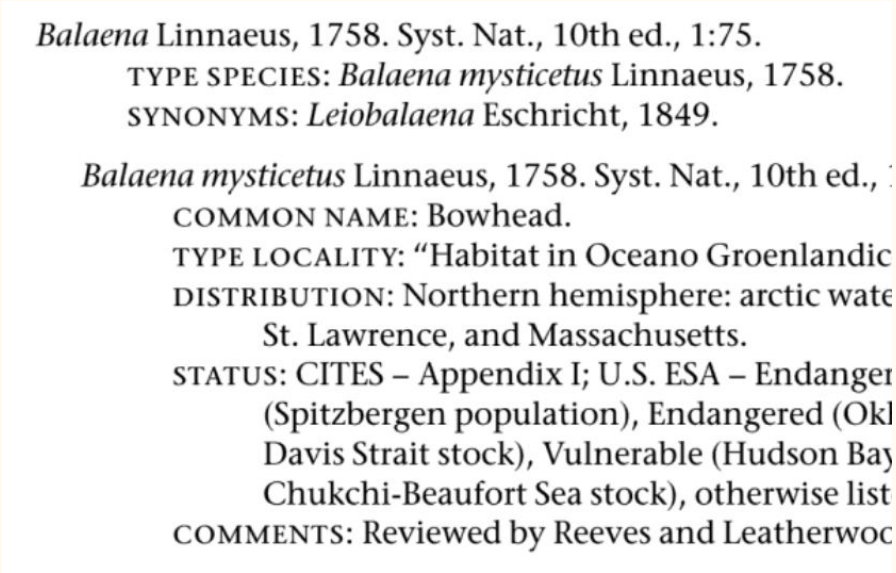
- Trouessart (1897–1905)
  - Epithets, citations, distributions
- Regional compendia (mid-20th century)
  - e.g. Allen (1939) [Africa], Ellerman & Morrison-Scott (1951) [Eurasia], Cabrera (1958, 1961) [South America]
  - Generally: Original name combinations, abbreviated citation, type locality
- *Mammal Species of the World* 3rd ed. (MSW3) (2005)
  - Complete synonym lists with author and date, but no citations for synonyms
- Newer regional compendia (21st century)
  - e.g. Jackson & Groves (2015) [Australia], Gardner (2008) [South America]
  - More detailed citations, more attention to nomenclatural accuracy

MSW3 vs. Hesperomys/MDD

- Total names:
  - **26,257** (MSW3, 2005)
  - **32,803** (Hesp/MDD, 2024)
  - +25%
- **5162** species recognized by both MSW3 and us
  - **649** now have a different scientific name (13%)
  - **182** now have a different specific epithet (3%)
  - **514** are now in a different genus (10%)
  - **326** are dated to a different year (6%)
  - **75** are attributed to a different author (1.5%)

25% more names

- 1199 names in our dataset from after 2004 (4%)
- 1901 are misspellings (6%)
- But many more were missed in MSW3



Balaena Linnaeus, 1758. Syst. Nat., 10th ed., 1:75.
TYPE SPECIES: *Balaena mysticetus* Linnaeus, 1758.
SYNONYMS: *Leiobalaena* Eschricht, 1849.

Balaena mysticetus Linnaeus, 1758. Syst. Nat., 10th ed.,
COMMON NAME: Bowhead.
TYPE LOCALITY: "Habitat in Oceano Groenlandic
DISTRIBUTION: Northern hemisphere: arctic wate
St. Lawrence, and Massachusetts.
STATUS: CITES – Appendix I; U.S. ESA – Endange
(Spitzbergen population), Endangered (Okl
Davis Strait stock), Vulnerable (Hudson Bay
Chukchi-Beaufort Sea stock), otherwise list
COMMENTS: Reviewed by Reeves and Leatherwoc

Names (13)

- *Balaena borealis* Lesson, 1828:394, 442 (synonym, = *Balaena*
  - Status: nomen novum
- *Balæna misticetus* S.D.W., 1836:71 (synonym, = *Balaena mystic*
  - Status: incorrect subsequent spelling
- *Balaena mysticetus* Linnaeus, 1758:75
  - Type locality: Arctic Ocean (Recent of Arctic Ocean)
  - No type specimen in existence
- *Balaena mysticetus arctica* Schlegel, 1841:36 (synonym, = *Ba*
  - Type locality: Arctic Ocean (Recent of Arctic Ocean)
- *Balaena Mysticetus groenlandica* Kerr, 1792:356 (synonym,
  - Type locality: Greenland (Recent of Greenland)
- *Balaena mysticetus forma pitlekajensis* Malm, 1883:37 (syn
  - Type locality: Chukotka (Recent of Chukotka)
- *Balaena mysticetus pittekajensis* Trouessart, 1905:787 (syn
  - Status: incorrect subsequent spelling
- *Balaena mysticetus roysii* Dall, 1874:305 (synonym, = *Balaena*
  - Type locality: Russia (Recent of Russia)
- *Balaena prisca* Nilsson, 1847:643 (synonym, = *Balaena mystice*
  - Type locality: Sweden (Recent of Sweden)
- *Balaena Tannenbergensis* Brandt, 1873:23 (synonym, = *Balae*
  - Status: unjustified emendation
- *Balaena Tannenbergii* Van Beneden, 1872:250 (synonym, = *B*
  - Type locality: Poland (Recent of Poland)
- *Hunterius Svedenborgii* Lilljeborg, 1867:35 (synonym, = *Balae*
  - Type locality: Sweden (Recent of Sweden)
  - Holotype: UUZM type #443
- *Hunterius Swedenborgii* Gray, 1871:44 (synonym, = *Balaena m*
  - Status: incorrect subsequent spelling

A literature full of surprises

- S. 397. nach dem Nylgau. Ant. tragocamelus:

  ? Der Pheir. Ant. Hodgsonii.

  Nicht abgebildet.

  Pheir heißt im Himalaja-Gebirge eine große Antilope von Major Hodgson entdeckt. In der Bildung hat sie viel ähnliches mit dem Nylgau, aber die Hörner sind groß, der untere Theil erhebt sich ganz gerade von der Stirne, die obere Hälfte ist rückwärts gebogen. Der Pelz ist kurz be-

Changed scientific names

649 species recognized both in 2005 and now, but scientific name changed

- Taxonomy
  - Genus changed (e.g., *Canis adustus* -> *Lupulella adusta*)
  - Senior synonym recognized (e.g., *Marmosa quichua* -> *Marmosa macrotarsus*)
- Nomenclature
  - Original spelling restored (e.g., *Notopteris macdonaldi* -> *Notopteris macdonaldii*)
  - Gender agreement fixed (e.g., *Abrothrix olivaceus* -> *Abrothrix olivacea*)

Notopteris macdonaldi Gray, 1859. Proc. Zool. Soc. Lond., 1859:38.
COMMON NAME: Fijian Long-tailed Fruit Bat.
TYPE LOCALITY: Fiji Isls, Viti Levu.
DISTRIBUTION: Vanuatu (= New Hebrides), Fiji Isls. A record

NOTOPTERIS MACDONALDII. (Pl. LXVII.)

Pale-reddish brown above, rather greyer beneath; the hinder half of the back, which is covered by the bases of the wings, bald, with a very narrow line of short hair down the vertebral line. The

Original spellings

- Usually, the spelling in the first description remains correct
- We have looked up the original descriptions of most (not yet all) mammals
- Sometimes that indicates the spelling currently in use is wrong
- Often both versions appear in the literature
- Sometimes the newer spelling is so entrenched that the Code lets us keep it
    - 29 recognized mammal species currently do not use the original spelling

Gender agreement

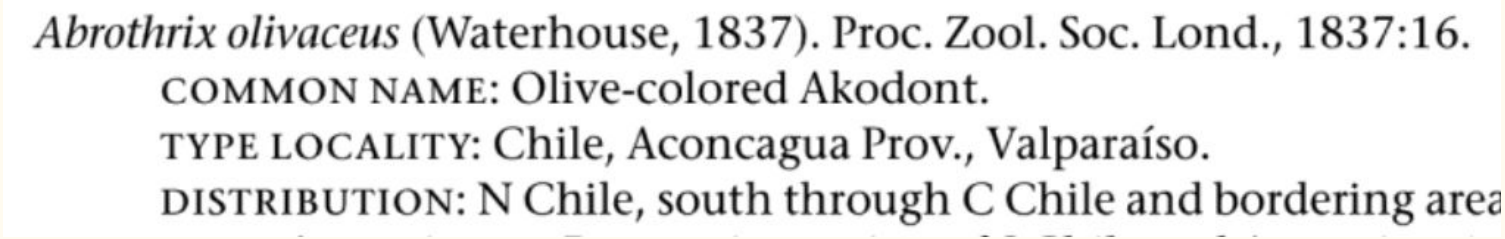
- Scientific names use Latin, and Latin is a gendered language
  - Same as in Spanish: *ardilla roj**a*** but *lobo roj**o***; *Aplodontia ruf**a*** but *Canis ruf**us***

Two steps:

- What is the gender of the generic name?
  - Usually based on the Latin or Greek stem
  - Extant mammals: 73% masculine, 26% feminine, 2% neuter
- Is the species name an adjective?
  - Only adjectives agree in gender with the genus name
  - Not always easy to figure out
  - Extant mammals: 51% adjectives, 28% patronyms, 15% noun in apposition

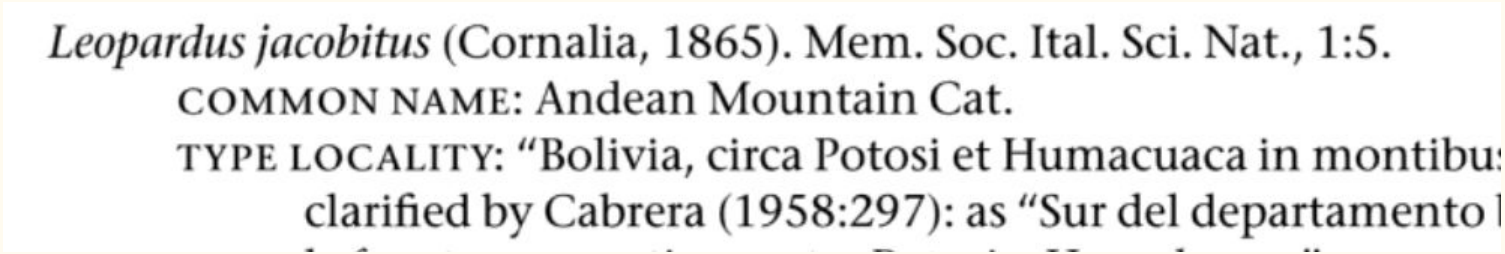
Gender agreement: Some examples

- θρίξ is feminine in Greek, but we were using masculine adjectives
  - Now *Abrothrix olivacea*



Abrothrix olivaceus (Waterhouse, 1837). Proc. Zool. Soc. Lond., 1837:16.
COMMON NAME: Olive-colored Akodont.
TYPE LOCALITY: Chile, Aconcagua Prov., Valparaíso.
DISTRIBUTION: N Chile, south through C Chile and bordering area

- This was originally *Felis jacobita*, and it is not an adjective
  - Now *Leopardus jacobita*



Leopardus jacobitus (Cornalia, 1865). Mem. Soc. Ital. Sci. Nat., 1:5.
COMMON NAME: Andean Mountain Cat.
TYPE LOCALITY: "Bolivia, circa Potosi et Humacuaca in montibu
clarified by Cabrera (1958:297): as "Sur del departamento

Year of publication

326 names are now cited to a different year. Why?

- Plain mistakes
  - Example: *Molossus fuliginosus* and *Molossus australis* were published on the same page, but MSW3 lists one as 1838 and the other as 1839
  - Database format makes it much easier to detect this
- Discovery of earlier publication
  - Example: *Crocidura religiosa* was dated to 1827, but an 1826 publication was later discovered
- New bibliographic evidence
  - Example: *Papio papio* was dated to 1820, but Jackson & Groves (2015) provided evidence the book was actually published in 1821

Year of publication: Why is it hard?

- 19th-century works were often published in parts
  - And it's not always easy to figure out when each part was published
  - Example: *Lontra canadensis* is now attributed to 1776, not 1777
- Confusion over year of reading vs. year of publication
- Stated year of publication may be wrong
  - Example: Desmarest 1820/1821
- New issue: Online vs. print publication
  - The Code now allows online publication, but only with ZooBank registration

Authorship

- 3283 names have a different author if you compare the text directly
  - “Thomas” vs. “O. Thomas”
    - Database format makes it easy to figure out when a last name is repeated
  - “and” vs. “&”
  - But of course, that’s not very interesting
- 39 names use a meaningfully different spelling for the author

Cavia magna Ximinez, 1980. Rev. Nordest. Biol., 3 (especial):148.
COMMON NAME: Greater Guinea Pig.

NOTAS SOBRE EL GENÉRO *Cavia* PALLAS CON LA DESCRIPCIÓN DE *Cavia magna* sp.n. (MAMMALIA-CAVIIDAE)

Alfredo Ximenez

- 36 names are attributed to different people

Mesomys leniceps Thomas, 1926. Ann. Mag. Nat. Hist., ser. 9, 18:348.
COMMON NAME: Woolly-headed Spiny Tree-rat.

XLV.—*The Godman-Thomas Expedition to Peru.*—IV. *On Mammals collected by Mr. R. W. Hendee North of Chachapoyas, Province of Amazonas, North Peru.* By OLDFIELD THOMAS and Miss J. ST. LEGER.

Evaluation: How does this help us?

- Better compliance with the Code
- Aggregating data now means fewer surprises in the future

We may never finish figuring out how many species of mammals there are, but at least we should be able to figure out the correct names for the species we know.

Questions?