

HOW TO CURATE: ZOOLOGICAL TAXONOMY AND LABELLING



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What will be covered.

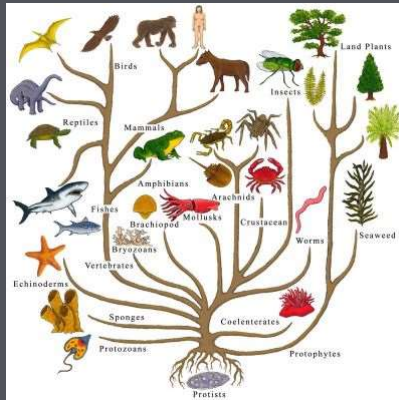
- Basics of zoological taxonomy.
- Value of taxonomy and zoological information – getting it right.
- What to put on your labels.



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Why does taxonomy matter?

- Taxonomy is the science of naming biodiversity.
- Species are disappearing at least as rapidly as we can find them and unless we collect and describe them, evidence that they ever existed and all that we might have learned from them will be gone.



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Naming things

Common name:

These are used locally and may vary by region or country.

Scientific name:

These are unique names used by the scientific community to accurately and universally identify species.

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English names for the same animal.

- | | | | | |
|---|--|---|--------------------------------|--|
| 1. Cheesy-bugs or Cheeselogs (England) | 2. Slaters (Scotland, New Zealand and Australia) | 3. Gramersows or gramfers (Cornwall, England) | 4. Butchy boys (Australia) | 5. Boat-builders (Newfoundland, Canada) |
| 6. Chisel bobs (England) | 7. Woodpigs or timberpigs (England) | 8. Monkey peas or peaballs (England) | 9. Pishamares (England) | 10. Potato bugs or tomato bugs (United States) |
| 11. Sow bugs (United States and Canada) | 12. Chuggie pigs, chuggy-pegs or chucky pigs (England) | 13. Crunchy bats (England) | 14. Wood bugs (Western Canada) | 15. Carpenters (Eastern Canada) |
| 16. Granny greys (Wales) | 17. Billy buttons (England) | 18. Doodle bugs (United States) | 19. Parson pigs (Isle of Man) | |

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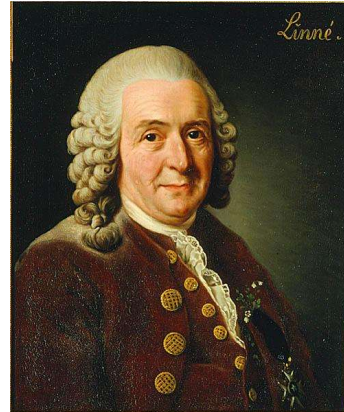
Binomial nomenclature

Porcellio scaber
(Rough woodlouse)



Carolus Linnaeus – father of taxonomy

- 1707-1778 Swedish
- Zoologist, botanist and physician.
- Developed a hierarchical system of classification:
- Binomial nomenclature.
- Allows taxonomists worldwide to talk in the same language.



What's in a binomial name?



The genus name groups together similar species.



The species name is often descriptive or it gives geographic origin or is named after the person who discovered it.



Both names are needed to identify species.

New species 2018

- Dr Graham Holloway



- Named *Anthrenus amandae*
- Collected whilst on holiday in Majorca!



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New species 2020

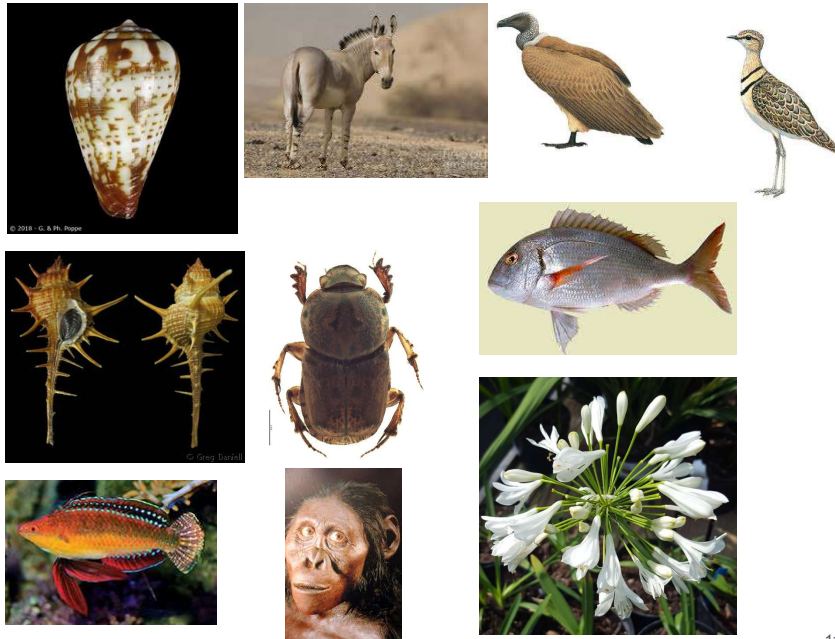
- Dr Graham Holloway
again (@@!)



- Named *Anthrenus crypticus*
- Discovered in the NHM entomology collection
- Cryptic coloration, looks like other species.

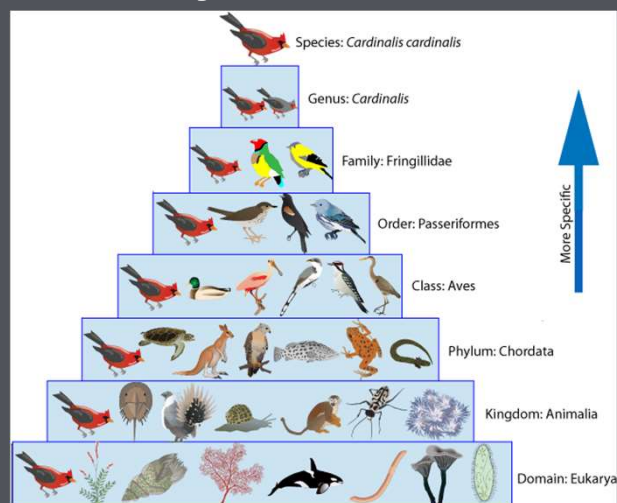


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Full taxonomy



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Don't go there.....

- Keep it simple.
- Common name
- Species name
- Family



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Natural history curation

- Natural history collections have unique purposes and uses compared to history and art collections.
- They are primarily used for research by scientists and academics and are continually added to, to help track information about species, populations and other parts of the natural world.



Photo: Cole Museum of Zoology

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Why NH labels are important

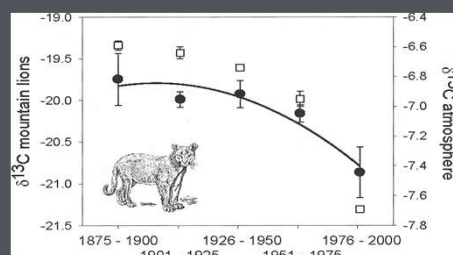
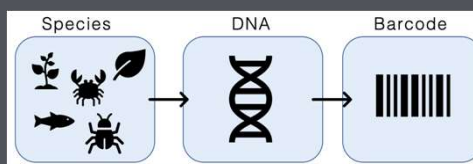
- The written record associated with an object often is as valuable as the object itself.
- Robust protocols for specimen flow from the time of collection through to writing the specimen label, mounting or preparing the specimen, data entry, filing.



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Retrieval of biological data possible but expensive

- DNA barcoding – species/sub-species
- Stable Isotope analysis – diet, dates and area



Journal of Mammalogy, 93, 2012, 312-328,

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Getting it right in non-NH museums



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Use appropriate sources of information

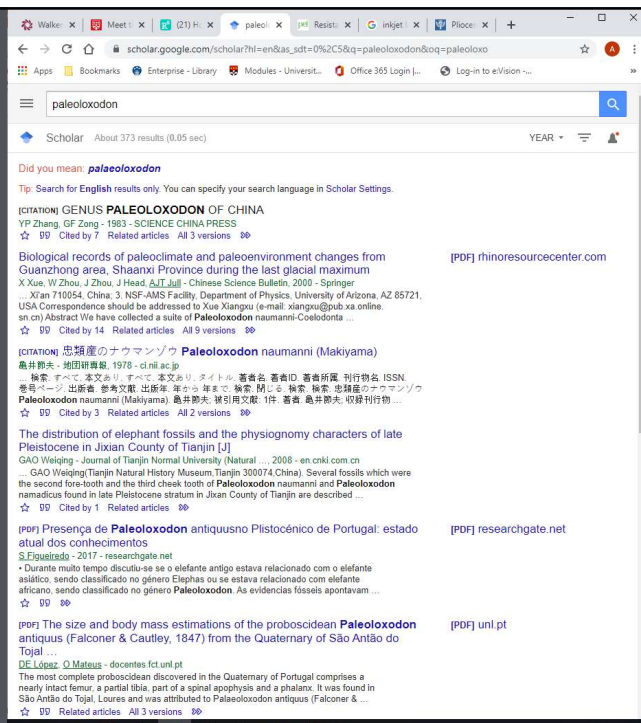
- Not *Elephas*
- *Paleoloxodon* (2007)
- Dates very specific (Wikipedia)
- Go to the primary literature "Google Scholar"



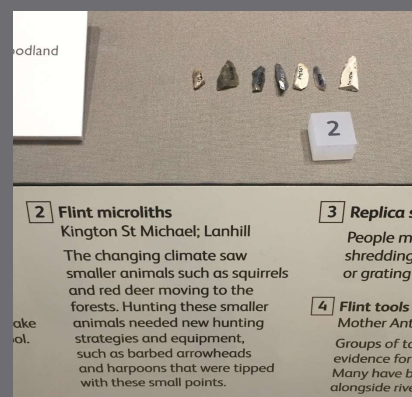
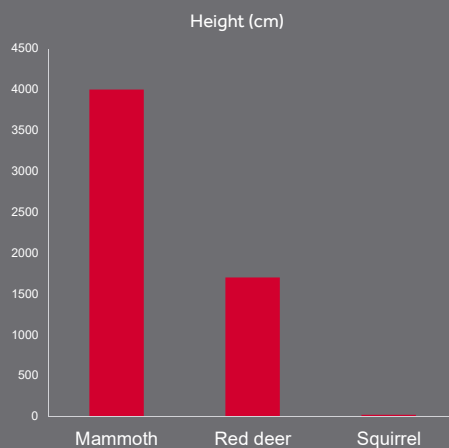
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Information sources

- Specialists
- Google scholar
- Organism specific databases



Do your research



Specimen labels

- Prime source of information.
- Keep with specimen.
- Either attach to specimen or keep it in the specimen jar if possible.
- If osteology or dried can write on specimen or glue label on.



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Historical collections (e.g. molluscs)

- Poor handwriting
- Incorrect specimen identification
- More recent changes to taxonomy
- How to get help:
- <http://www.marinespecies.org/>
- <http://species-identification.org/>
- <https://gbmolluscatypes.ac.uk/handwriting>



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Zoological Specimen labels

- Accession number
- Common name
- Species binomial name
- Family
- Gender
- Location and date collected
- Collector or donor
- If preservatives used i.e. formalin

KU 12345	Cyprinidae
<i>Richardsonius balteatus</i>	
North America, United States of America, Idaho, Gooding, Malad River, 1 mi. below falls, 42.8652801514°, -114.8682098389°	
Field #: GRS 67-25	Date: 07/04/1967
Coll: Smith, Gerald R; Koehn, R K	
EtOH - 2	
University of Kansas Biodiversity Institute - Ichthyology	

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Fluid collections

- Labels often submerged, use specialist inks and papers, not soluble in water, alcohol or other commonly used fluids.
- Cole specimens, lid has accession number and code etched into glass.
- Teaching specimens have submerged labels.

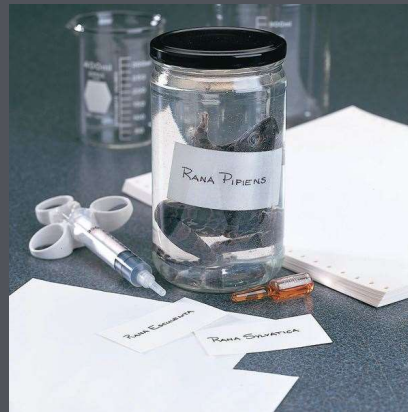


Photo: Cole Museum of Zoology

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Papers for fluid specimens

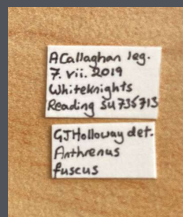
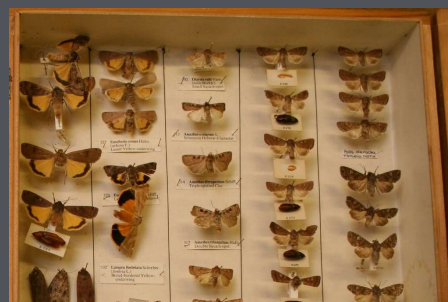
- Resistall Paper from Byron Weston Co
- 100% cotton fibre
- Strong when wet
- Not acid-free
- Tyvek is acid free, light weight, resistant to harsh chemicals and water.



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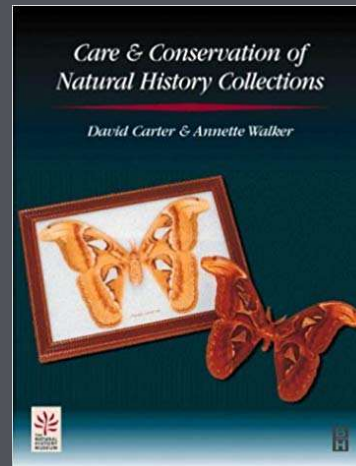
Entomological collections

- Pins are widely used to attach labels to entomological specimens.
- Multiple labels can be stacked on the pin below the specimen.
- Alternatively can card specimens (see right).
- Watkins and Doncaster coleoptera die-cut card
- <https://www.watdon.co.uk/>



If in doubt

- Ask a NH professional!
- Ask via NatSCA jisc
- Look at the free handbook online at NatSCA
- <https://www.natsca.org/sites/default/files/publications/books/Appendix1-Documentation.pdf>
- Other literature through NatSCA
- Taxonomy shifts like the dunes, be aware!



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Questions?



Contact: a.callaghan@reading.ac.uk

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