

G112 Species Reports

Write a report on an extinct Pleistocene mammal using the template below. The purpose of the assignment is threefold: (1) to acquaint you with genuine scientific literature from paleontology and geology; (2) to give you experience researching a new topic; and (3) to help build an online resource on Pleistocene mammals.

After your reports have been graded and checked, I will add them to an online database that is modelled after the Animal Diversity Web project at University of Michigan (<http://animaldiversity.ummz.umich.edu>). Information on that site was created by student reports like the ones for our class. Because of this, accurate information with proper citation is important both for the report grade and for the quality of the online information, which will be used by others.

Grading of the report will focus on the extent to which properly use original scientific sources. The basic facts or interpretations that you report should come from sources where the author actually studied the fossils or deposits and published in proper scientific literature. You should use proper citation format, if for no other reason, to make it easy for others who are interested in your species to follow in your footsteps to direct sources of information. You may also include pointers to popular literature in your report if you desire. *A quick guide to proper citation is available on the course website and you will see examples of that format in the *Mammuthus primigenius* example report.*

Your report should address all of the sections listed in the template below. Depending on the species, there may be some sections where nothing is known because appropriate fossils have never been discovered. If this is the case, state that the information is unknown.

Where to start

Locating scientific papers on fossil mammals is a bit like a treasure hunt: you have to search hard for the first items, but then you can follow clues in the bibliographies of those papers to new papers.

A good place to start is the 'Mammalian Bestiary' that Linda Zelmer told you about. It is now on the G112 e-reserve page. That article will give you some basic information, but **note that it is information about the entire genus, not for individual species.** You'll also find on the e-reserves a guide to finding the full bibliographic citation to an article where you only know the name of the author and the date.

The best way to start finding sources is to search for the full scientific name of your species in the following online databases of journal articles.

- ISI Web of Science part of Web of Knowledge (login through library page)
- GeoRef (login through library page)
- JSTOR (<http://www.jstor.org/> or login through library)

- Lexis-nexis (<http://web.lexis-nexis.com/> using advanced search for all fields, including full text, and all available dates)
- Bibliography of Fossil Vertebrates (search format is “Taxon='Mammuthus primigenius’”, where you substitute your species name for *Mammuthus primigenius*).
- American Museum publications (<http://digitallibrary.amnh.org/dspace/>)

Some searches return electronic copies of the journal automatically (JSTOR, Lexis-Nexis, American Museum, Palaeontology). You can download these papers as PDFs.

Others databases use “IU@Link” to lead you to the article. Clicking on the icon will lead you to an online copy of the article if it exists or to the IU library catalogue if there is no online version. **Note that sometimes the system says that no electronic version is available, but the IU catalogue has a link to an electronic version that was not known to the IU Link system.**

You can find more articles in the following ways:

1. Look up papers cited in the article.
2. Search for papers by the same author.
3. Search for alternative names for your species listed in the article.

Introduction to Scientific Species Names

Every species is designated by two Latin names, known as a binomial, and a person's name and date. For example, the Woolly mammoth is:

Mammuthus primigenius (Blumenbach, 1799)

The first of these names is the genus name. Normally there are several species that belong to the same genus. The second is the species names. There may be species with the same name in different genera (the plural of ‘genus’), but there will only be one species with that name in a particular genus. The combination of genus and species name is unique and refers to one and only one species. Species can sometimes be moved from one genus to another if there is scientific reason to do so. For example, *Mammuthus primigenius* was once known as *Elephas primigenius* because it was first thought to be more closely related to living elephants than it turns out to be.

The name and date refer to the author that first described the species in scientific literature and the date is the date that article was published. If the species was first described as part of the same genus it now belongs to, then the author and date come after the genus and species names without parentheses, but if the species was originally described as part of a different genus then parentheses are placed around the author and year, as is the case with Blumenbach, 1799 in the name above.

Note that each genus has its own author and date, which may be different from the species. The authors and dates reported in the Mammalian Bestiary belong to the genus, so don't use them for your species. For example, *Mammuthus* as a genus was described by Burnett, 1830, not Blumenbach, 1799. It was Burnett who decided that the mammoth was distant from the living elephants and so created the genus *Mammuthus* for them whereas Blumenbach had included them in *Elephas*.

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3. Write to the copyright holder citing full information about the item you want to produce (e.g., journal title, volume and issue number, year, article title and author, page, figure number or caption).

- a. Suggested text:

To Whom It May Concern:

I am a student at Indiana University. For a class assignment we are producing reports on Pleistocene mammal species that will go into an online educational and research database. I would like to reproduce an illustration whose copyright you hold. The image will be used only for that database and not for commercial gain. Full citation to the original article will be provided with the image. The image is: [*insert description here*].

Yours sincerely,
Your Full Name and e-mail address

Copyright information

<http://www.copyright.iupui.edu/quickguide.htm>

<http://www.unc.edu/%7EuncInlg/public-d.htm>

Suggested species

I have checked the following species and found that papers about them are comparatively easy to find and are written in English.

You will have to sign up for species so that nobody is doing the same one. If you would like to choose another species, discuss it with me when you sign up.

Dasybus bellus, The Belligerent Armadillo
Megalonyx jeffersonii, Jefferson's Giant Ground Sloth
Gulo gulo, Wolverine
Borophagus diversidens,
Canis dirus, Dire Wolf
Alopex lagopus, Arctic Fox
Arctodus simus, Giant Short-Faced Bear
Smilodon fatalis, Saber-toothed Cat
Panthera atrox (or *Panthera leo atrox*), North American Lion
Aplodontia rufa, the Mountain Beaver
Equus occidentalis, Western Horse
Castoroides ohioensis, Giant Beaver
Camelops hesternus,
Hemiauchenia macrocephala, Big-headed Llama
Navahoceros fricki, Frick's Mountain Deer
Rangifer tarandus, Reindeer
Cervalces fricki, Frick's Deer Moose
Saiga tatarica, Saiga
Symbos cavifrons, extinct Musk-ox
Bison priscus, extinct bison
Bison latifrons,
Hydrodamalis gigas, Steller's Sea Cow
Mammuth americanum, American Mastodon
Mammuthus columbi, Columbian Mammoth
Mammuthus meridionalis, Ancestral Mammoth

Report Template

Overview

1. An plain-English introductory paragraph to your species. Include interesting information that doesn't fit elsewhere in the overview.

Formal taxonomy

1. Species name and author
2. Family and Order
3. Type specimen (short description and location)

Stratigraphic and geographic range

1. First occurrence
2. Last occurrence
3. Where has it lived and when?

Ecomorphology

1. Diet (folivorous, grazer, carnivore, omnivore, piscivore, including details of the teeth and jaws that indicate this.
2. Body mass, including reference as to how it is known (or your own calculations).
3. Locomotion (graviportal, cursorial, ambulatory, unguligrade: more about these in future lectures/labs), including details that indicate this.
4. Habitat (open grassland, forest, caves, etc.)

Phylogenetic relationships

1. How is this species related to other extinct and living species?
2. What evidence tells us this?

Useful literature

A short description of four or five especially useful scientific and popular papers or books about the species.

Pictures

Pictures of specimens or artistic reconstructions. If these are still in copyright permission should be obtained, with the written consent included with the report. Regardless of copyright, the source of each picture should be cited.

References

Full details of publications where your information came from in alphabetical order by last name of the author. Citations to these references should be made in the text sections by putting the name of the author and year of publication at the ends of sentences where information from that source is used. The reference list should include the scientific paper in which the species was first named.