



- Two new studies on the American cheetah, [Miracinonyx: Elbow-joint morphology in the North American 'cheetah-like' cat \*Miracinonyx trumani\*](#); and [The brain of the North American cheetah-like cat \*Miracinonyx trumani\*](#); Phys.org summary [here](#).
- [Allometry in Late Devonian Podocopa ostracods \(Crustacea\) and its implications for ostracod ontogeny](#); Phys.org summary [here](#).
- [Response of diatom assemblages to orbital- and millennial-scale climatic variability since the penultimate glacial maximum in the northern limit of the Neotropics](#).
- [Glacial expansion of cold-tolerant species in low latitude: megafossil evidence and distribution modelling](#).
- [New specimens of the early Permian apex predator \*Varanops brevirostris\* at Richards Spur, Oklahoma, with histological information about its growth pattern](#).

## Environmental Geology and Hydrogeology

- [Ranking Canadian waste management system efficiencies using three waste performance indicators](#).
- East Palestine Ohio disaster, from Vox: [Yes, the Ohio train wreck is an environmental disaster. No, it's not Chernobyl](#).
- [Analysis of groundwater flow through low-latitude alpine permafrost by model simulation: a case study in the headwater area of Yellow River on the Qinghai-Tibet Plateau, China](#); behind paywall, Phys.org summary [here](#).
- From the U. S. Geological Survey: [Radon in New Hampshire Groundwater](#).

## Glaciers and Climate Change

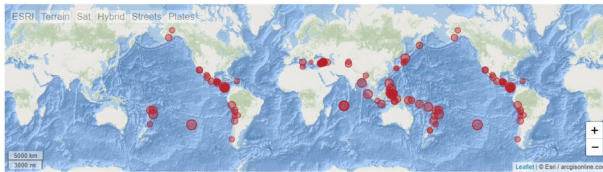
- [Interdecadal glacier inventories in the Karakoram since the 1990s](#).
- Past Antarctic climate: [Widespread southern elephant seal occupation of the Victoria land coast implies a warmer-than-present Ross Sea in the mid-to-late Holocene](#); Phys.org summary [here](#).
- [Carbon isotope and biostratigraphic evidence for an expanded Paleocene–Eocene Thermal Maximum sedimentary record in the deep Gulf of Mexico](#); Phys.org summary [here](#).
- [Drying of tundra landscapes will limit subsidence-induced acceleration of permafrost thaw](#).
- Cow farts and methane: [Comparing process-based models with the inventory approach to predict CH<sub>4</sub> emission of livestock enteric fermentation](#).

## Mining and Energy

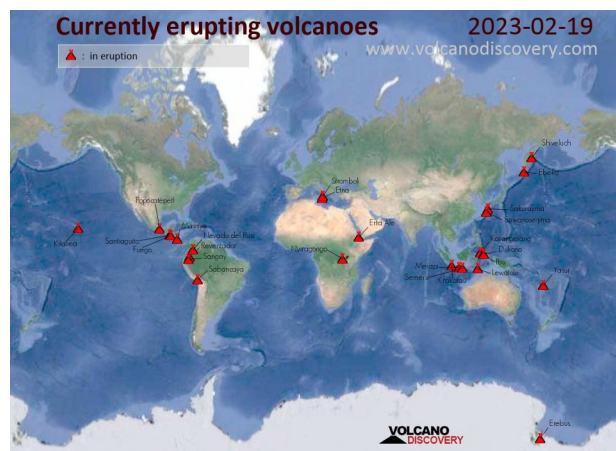
- [Rambler pauses copper-gold mine in Newfoundland amid financial restructuring talks](#).
- Bad actors: [Glencore hit by fresh bribery-related lawsuit in the UK](#).
- [General Motors digs into mining business to lead race for EV metals](#).

- [Northwestern Ontario sees the green lithium rush.](#)
- [Oil Settles Down \\$2/bbl, Ends Week Lower on Fed Worries, Ample Supply.](#)
- Origin of two hydrocarbon reservoirs: [Combining Paleomagnetic and Re-Os Isotope Data to Date Hydrocarbon Generation and Accumulation Processes](#); Phys.org summary [here](#).
- From the U.S. Energy Information Administration (USEIA): [Germany extends the life of its last three operating nuclear power plants until April.](#)
- Also from the USEIA: [The Henry Hub natural gas spot price declined 41% in January.](#)
- [Europe's Thirst for U.S. Crude To Stay High In 2023.](#)
- [UK Financial Regulator Sued Over Oil Firm's Climate Disclosures.](#)
- [Notorious Drug Trafficking Hub Used For Russian Oil Shipments.](#)

## Volcanoes, Earthquakes and Geohazards



[Latest Quakes](#)



[Active Volcano Map](#)

- [Paleomagnetic constraint of the age and duration of the Taupō Eruption, New Zealand.](#)
- From Geology In: [The Geology Behind the Deadly Earthquakes in Turkey and Syria.](#)
- Historic earthquakes: [Buildings tumbling, survivors living in tents: Medieval descriptions of an earthquake in present-day Turkey and Syria.](#)
- Earthquake research: [Ultralow frictional healing explains recurring slow slip events](#); behind paywall, Phys.org summary [here](#).
- Landslide research: [Geomorphological landslide inventory map of the Daunia Apennines, southern Italy.](#)

February 20, 2023

## Other Animals of Pleistocene Eurasia

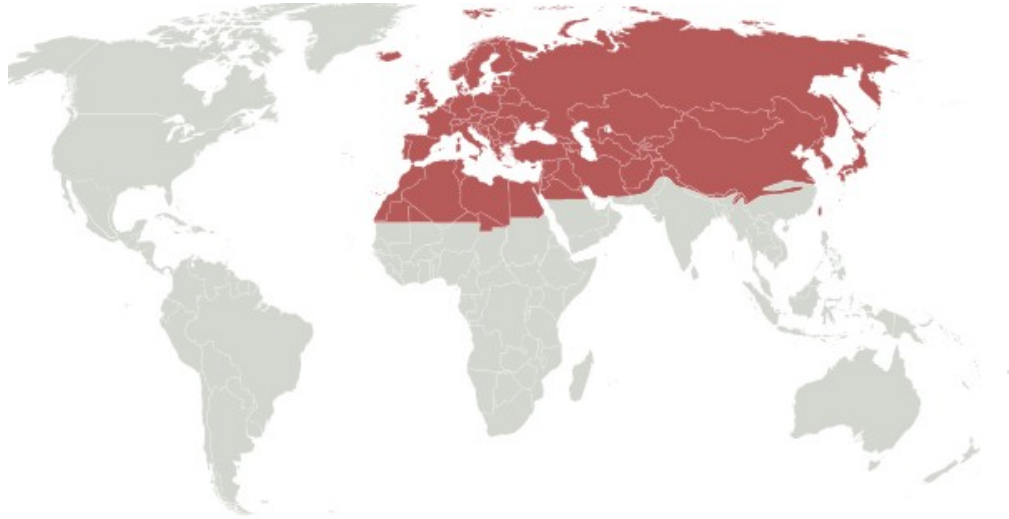


Figure 1 – Palearctic Eco-zone

Credit: [carol](#), [Creative Commons Attribution-Share Alike 3.0 Unported](#) license

There were many other animals besides mammals in the [Palearctic Eco-zone](#) during the [Pleistocene Epoch](#), let look at few of the bird and reptile fossils from that time. Next week we'll begin our look at the [Nearctic Eco-zone](#).

### Birds

*Giant Swan – Cygnus falconeri*



Figure 2 – Two swans *Cygnus cygnus* (left) and *Cygnus falconeri* (right)

Credit: [Logo8th](#), [CC-BY-SA](#)

[\*Cygnus falconeri\*](#), also called the giant swan, lived on the island of Malta during the [Middle Pleistocene](#). It is an example of [island gigantism](#) where, in some cases, creatures isolated on an island become gigantic, in part due to the lack of competition and/or predation. It is almost the flip size of the [island dwarfism](#) that we saw for dwarf elephants like [\*Palaeoloxodon falconeri\*](#) in the [February 6 posting](#) of this blog. *Cygnus falconeri* weighed around 16 kg and had a wingspan of about 3 m. It was often bigger than the dwarf elephants that lived on Malta during the Middle Pleistocene. It may have not flown, although some depictions show it flying or even attacking *Palaeoloxodon falconeri*. Swans can be nasty creatures, just like [proverbial Canada Geese](#).



**Figure 3 – Giant Swan attacking Pygmy Elephant**  
**Credit: [Julio Lacerda](#), found in [2018 Reddit post](#) by [u/SummerAndTinkles](#)**

[William K. Parker](#), a British physician and zoologist, [first described](#) *Cygnus falconeri* in 1865 from fossil bones that he found in the Zebbug Cave in Malta. For fans of [Daffy Duck](#), *Cygnus falconeri* once appeared in the cartoon [Daffy Duck and the Dinosaur](#).

The genus [Cygnus](#) was first described by [Carl Linnaeus](#) in 1758 and contains six living species and about 12 extinct species.

### ***Pachystruthio***

A large ostrich-like bird that lived from the Late [Pliocene](#) to the Middle Pleistocene, [Pachystruthio](#) is [known from fossils](#) found in Hungary, the Crimea, Georgia, and China. Larger than modern [ostriches](#), some specimens of *Pachystruthio* were up to 3.5 meters tall and probably weighed up to 450 kg, making it one of the largest known birds in the fossil record.





Figure 4 – *Pachystruthio*, in the [Simon Janashia Museum, Tbilisi, Georgia](#)  
 Credit: [Interfase, Creative Commons Attribution-Share Alike 4.0 International](#) license

Hungarian geologist [Miklós Kretzoi](#) first described *Pachystruthio* in 1954 in the publication *Ostrich and camel remains from the Central Danube basin*, *Acta Geologica* 2: 231–242 (not online). There are three species in the genus *Pachystruthio*: *P. pannonicus* (type species), *P. dmanisensis*, and *P. transcausicus*.

## Reptiles

### *Solitudo*

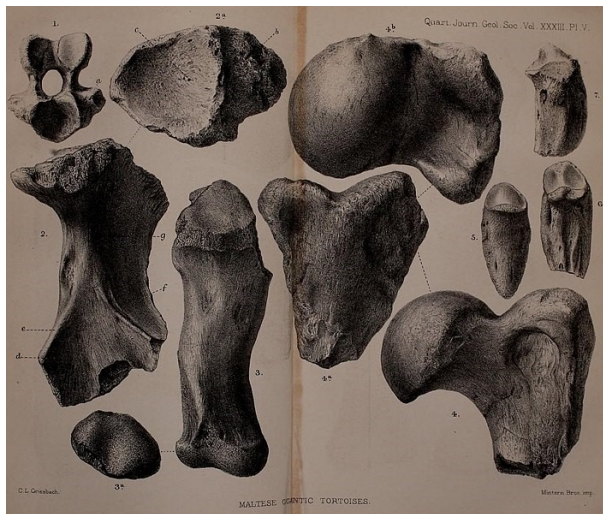


Fig. 1. Caudal vertebra  
 Figs. 2, 2a. Right coracoid of the scapula  
 Figs. 3, 3a. Right tibia  
 Figs. 4, 4a, 4b. Proximal third of the left femur  
 Figs. 5, 6, 7. Phalangeal bones

Figure 5 – Maltese Gigantic Tortoise Bones, *Solitudo*  
 Credit: [Biodiversity Heritage Library, Creative Commons Attribution 2.0 Generic](#) license

Known from Pliocene and Pleistocene fossils found on the Mediterranean islands of Menorca, Malta and Sicily, the genus *Solitudo* is another group of animals that were isolated on islands and grew large through the phenomenon of island gigantism. Some species of *Solitudo*, such as *S. gymnesica*, has been estimated to have reached a carapace length of 1.1–1.3 m (3.6–4.3 ft).

[Andrew Leith-Adams](#) made the [first description](#) of *Solitudo* in 1877 from fossils he found in the Zebbug Cave in Malta. Leith-Adams called the tortoise *Testudo robusta*, thinking it related to the modern tortoise *Testudo* that lives in the Mediterranean basin and Central Asia. Later similar fossils were found on the [island of Menorca](#) and in the [Zubbio di Cozzo San Pietro cave in northern Sicily](#). The Sicilian discoveries gave sufficient evidence to rename the tortoises from Menorca, Malta and Sicily *Solitudo*. There are three species in the genus *Solitudo*: *S. robusta* (type species), *S. gymnesica*, and *S. sicula*.

#### *Japanese Crocodile – Toyotamaphimeia machikanensis*



**Figure 6 – *Toyotamaphimeia machikanensis* Skeleton at [Moscow Paleontological Museum](#)  
Credit: [Pavel Bochkov](#), [Creative Commons Attribution-Share Alike 2.0 Generic](#) license**

Named after the Japanese goddess [Toyotama-hime](#), the fossil bones of *Toyotamaphimeia machikanensis* were first found in deposits of the Plio-Pleistocene [Osaka Group](#) during a [building excavation](#) for the School of Science in Osaka, Japan in 1964. *T. Machikanensis*, or the Japanese crocodile, was about 7.7 m long, of which the head alone was 1 m long.

An interesting feature of the Japanese crocodile is that the original specimen showed [a host of injuries](#) in the bones: the mandible was broken off at the tip, there were healed fractures in the tibia and fibula and some of the bony plates that were in the skin ([osteoderms](#)) seemed to preserve bite marks. It lived a dangerous life.

A team of geologists (Nobuo Kobatake, Manzô Chiji, Nobuo Ikebe, Shirô Ishida, Tadao Kamei, Kôjirô Nakaseko, and Eiji Matsumoto) [described the original discovery](#) in 1964, calling the crocodile *Tomistoma machikanense*. [Later analysis](#) by [Riosuke Aoki](#) in 1983 led to giving the species its current name, *T. machikanensis*. There is currently only one recognized species in the genus, the type species *T. Machikanensis*. However, the discovery of a related, [currently unnamed species from Taiwan](#) may add another species to the genus.

## **Wrapping it Up**

I am going to finish our look at Palearctic fossils from the Pleistocene Epoch here. Next week, we'll start on the Pleistocene fossils from the Nearctic Eco-zone.

## **Standard Caveat**

The purpose of my weblog postings is to spark people's curiosity in geology. Don't entirely believe me until you've done your own research and checked the evidence. If I have sparked your curiosity in the subject of this posting, follow up with some of the links provided here. If you want to, go out into the field and examine some rocks on your own with the help of a good field guide. Follow the evidence and make up your own mind.

In science, the only authority is the evidence.