Biodiversity & Extinction

Part 7 Hominins

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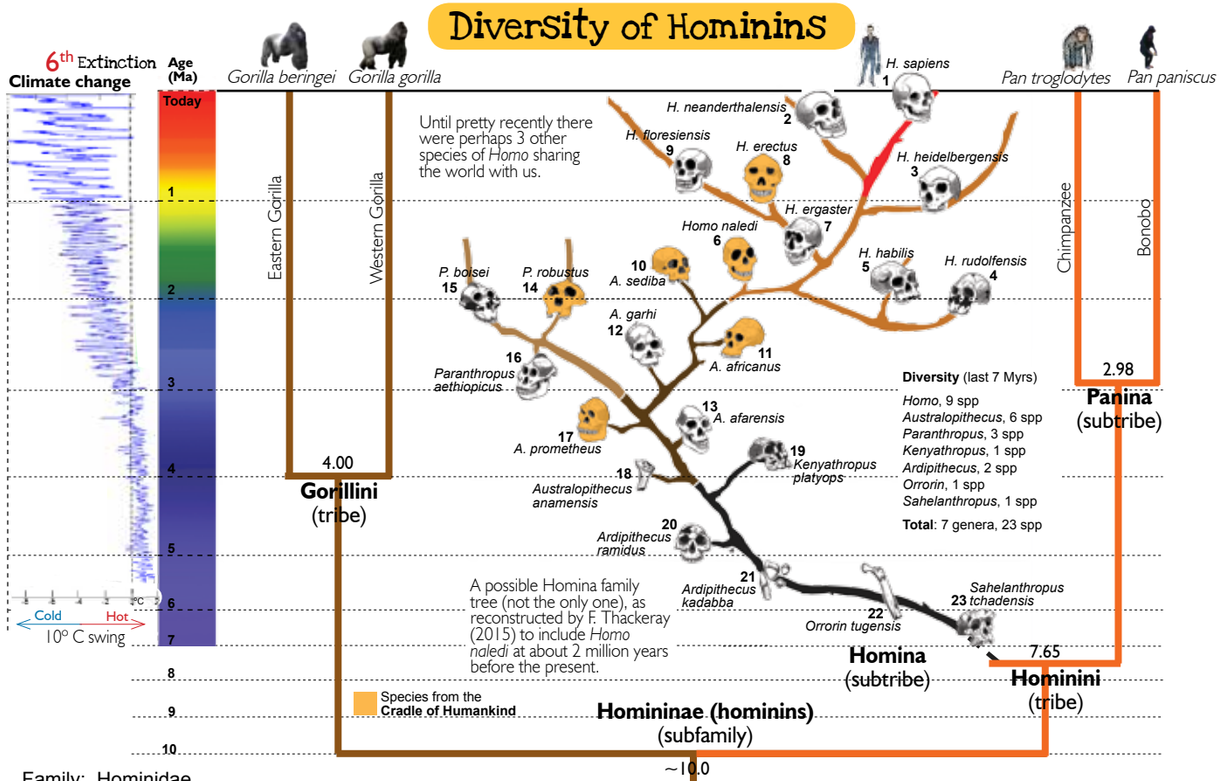
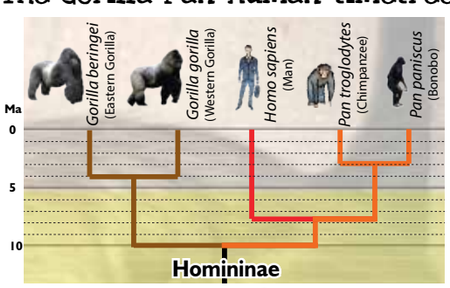
We humans, Homo sapiens, have arrived very late in the history of life. We've been around on Earth for only some 200,000 years. Our subtribe, the Hominina, have been around for some 7 million years; and our subfamily, the Homininae including the chimps and gorillas, for some 10 million years.

Diversity of Hominins



Family: Hominidae
Subfamily: Homininae
- *Gorilla gorilla* (Western gorilla)
  - *G. g. gorilla* (Western lowland gorilla)
  - *G. g. diehli* (Cross River gorilla)
- *Gorilla beringei* (Eastern gorilla)
  - *G. b. beringei* (Mountain gorilla)
  - *G. b. graueri* (Eastern lowland gorilla)
- *Pan troglodytes* (Common chimpanzee)
  - *P. t. troglodytes* (Central chimpanzee)
  - *P. t. verus* (Western chimpanzee)
  - *P. t. ellioti* (Nigeria-Cameroon chimpanzee)
  - *P. t. schweinfurthii* (Eastern chimpanzee)
- *Pan paniscus* (Bonobo)
- *Homo sapiens* (Human)

The Gorilla-Pan-Human timetree



The timetree shows we are more closely related to the chimpanzee than they are to the gorilla.

AEON, Joburg Zoo, SANBI Biodiversity for Life, DITSONG, ARC • LNR, University Pretoria, University Witswatersrand, University Stellenbosch, University Cape Town, Two Oceans AQUARIUM, Cranefield College, gondwana alive

Conservation International (2015); Butler (ed.) (2015) 'Over-development'; Katoh et al (2016), gorilla-human split

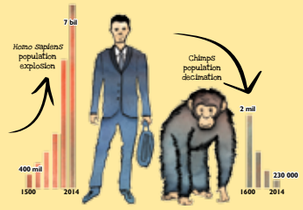
6th Extinction

We humans have destroyed over 80% of the habitat in the 34 continental biodiversity hotspots on Earth (see Part 2 of this series).

Croplands of the Earth occupy an area about the size of South America

Grazing lands take up an area about the size of Africa

Bring all the cities and towns and roads of the Earth together—how much space will they fill?



Within the Dem. Rep. of Congo the number of **Eastern lowland gorillas** in eight national parks has declined by 90% over the past 5 years, and only 3,000 now remain.

All **non-human great apes** are critically endangered. The biggest threat is the loss of their habitat due to commercial logging, and the conversion of rainforest into palm oil plantations and biofuel agriculture. This in turn has led to an increase in human populations in forest areas and has led to an increase in bush meat trade.

Commercial Logging – The cutting down of forest trees to sell wood and make room for agriculture is making less and less space available for great apes to live in. The roads being built in the forests are making it easier for people to move into the forests and exploit them.

Only 11% of **forests in Africa** are protected.

How do we recognise a human?

- Walking on two legs (bipedal)
- Large brain relative to body size
- Language, Symbolism, Happiness

School activity

Why not set up a weekly debate on Democracy. Why should we see the world as ours alone? Wouldn't it be a good plan to give our close cousins, the chimps & gorillas the vote? Why not bring them into the Democracy?

The world would be a far happier place if we shared it with the other 5 million or more species that live out there in nature!

Reconciliation (sapiens = wise)

Genome

- Our DNA is 98,8% similar to that of the chimps and bonobos.
- The DNA of humans, chimps and bonobos is 98,4% similar to that of gorillas.
- We are all close cousins, though we and the chimps are even closer than the chimps are to the gorillas.

What else can we do?
(amongst many possibilities)

Recycle old cell phones and electronic goods as this reduces the demand for Coltan. The main area where Coltan is mined, the Democratic Republic of Congo, is home to the Mountain Gorilla.

Be consumer aware and make sure that the products you use come from sustainable farming practices.

Communication (African apes & humans)

- The main difference in our DNA is related to speech development and hearing.
- Humans are the only ape that can form words; other apes cannot because the larynx muscle and vocal cords can't close as much or as fast as they do in humans.
- However, all apes are able to communicate with each other using a complex repertoire of sounds, facial expressions, body language and silent communication.
- In non-human apes, 'language' is limited and they only seem to communicate about the present and their immediate environment; unlike humans that can refer to the past and future.
- Many research projects on the gorillas, chimps and bonobos have been undertaken where individuals have been taught to communicate with humans using sign language and computer screens with keyboards and lexigram symbols.
- Chimps and gorillas have been known to use up to 200 different hand signals, but can understand human words and instructions of up to more than a 1000 words.
- We can 'talk' to each other and plan a happier future!

Gorilla

Human
Homo sapiens

Chimpanzee
Pan troglodytes