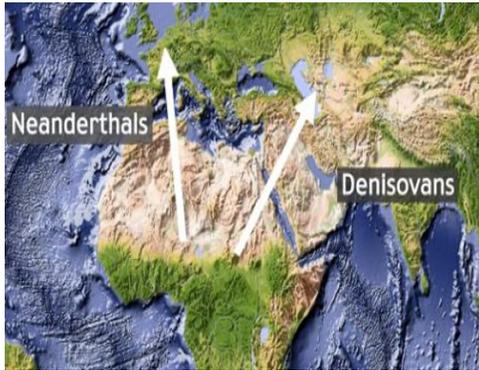


# THE DENISOVANS, RED DEER CAVE PEOPLE and HOMO FLORESIENSIS



## THE DENISOVIANS

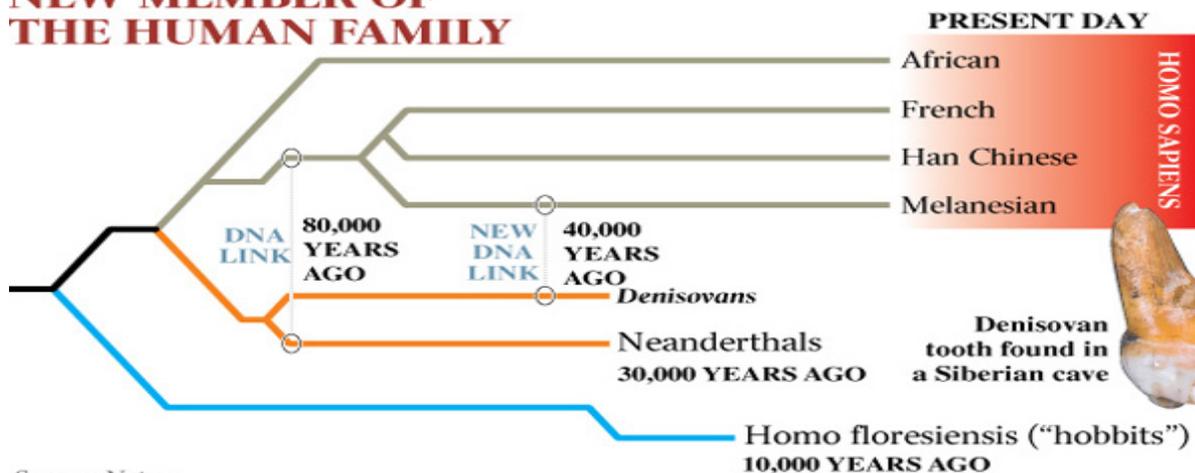
- In 2011, genome analysis of bones and teeth found in the Denisova Cave in Siberia identified a group of Neanderthals now called the Denisovians.
- A highly accurate genome has now been produced from a 30,000-year-old finger bone.
- Differences in DNA between Denisovans and European Neanderthals suggest years of separate evolution, with divergence being as long as 640,000ya
- Seems likely that modern humans, Neanderthals and Denisovans and European Neanderthals suggest years of separate evolution, with divergence being as long as 640,000 ya. It seems likely that modern humans, Neanderthals and Denisovians shared a common ancestor approx 1mya.
- About 5% of the Denisovian genome occurs in present-day humans in the Papua New Guinea region.
- Smaller amounts of Denisovian genes have been found in populations of east Indonesia, Australian aborigines, Fiji and Polynesia
- No Denisovian genes have been found in populations from west Indonesia or mainland Asia
- This suggests Denisovian ranged across southeast Asia and bred with modern humans who arrived in Southeast asia.
- It also supports the idea that two waves of modern humans migration into Asia from Europe occurred ( the first wave overlapped and interbred with the Denisovas, the second wave did not)



## RED DEER CAVE PEOPLE

- Fossil remains of early humans have been found in a cave in Yunnan province in China.
- They are the youngest known prehistoric population that does not look like modern humans.
- Fossils show a mixture of archaic and modern features.
- Skull features – flat face, broad nose, jutting jaw with no obvious chin, prominent brow ridges, and modern brain capacity.
- Found in cave with large red deer bones which the people cooked and ate.
- The population may be a separate species of humans that became extinct without contributing to the gene pool of modern humans; they may have resulted from interbreeding of Denisovians and modern humans.

## NEW MEMBER OF THE HUMAN FAMILY



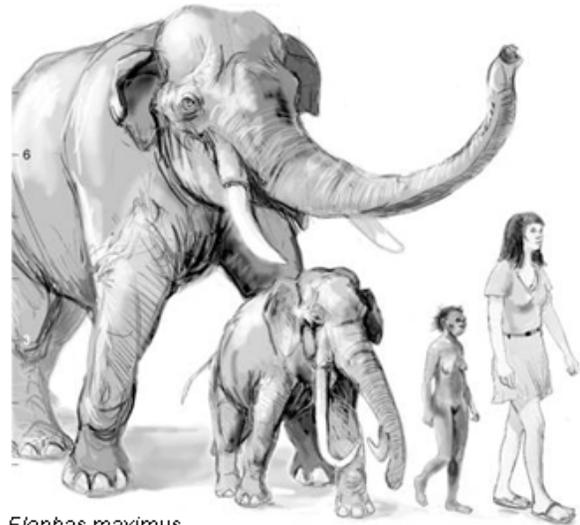
Source: Nature

## Homo floresiensis ( the Hobbits)

- The tiny *Homo floresiensis* was discovered in 2003 by a group of Australian and Indonesian researchers in a cave on the island of Flores in Indonesia
- A premolar with human-like features was initially found followed by a nearly complete skeleton.
- 7 more skeletons were found dating from 38,000 to 13,000.
- Individual found represented a species 1m high and weighed 25Kg.
- It had tiny Australopithecine – sized brain (400cm<sup>3</sup>)
- Skeleton is *Homo* in morphology.
- Teeth small, nose narrow, braincase and thickness of cranial bones have a strong relationship with *Homo* genus.
- Relatively sophisticated stone tools were found with the skeleton along with charred remains of a pygmy elephant relative.
- Fossils have put existence of species to be between 95000 -13000ya.

### FOSSILS HAVE LEAD TO MANY QUESTIONS:

1. Previously thought that modern humans was the only hominin in existence for the past 25,000 years.
2. Hominins this size were thought to have vanished with gracile australopithecines 2 MYA.
3. Sophisticated tools associated with small brain size and intelligence causes a dilemma – toolmaking had previously been associated with increased brain size. Tools showed considerable workmanship and variety. This suggests the structure of the brain is what is important – not size.
4. Charred bones of pygmy elephant suggests that species was able to work as a co-operative group to bring down large animals. Then use fire to process meat. This indicates *H. floresiensis* had the power of language to coordinate the groups activity.



*Elephas maximus*

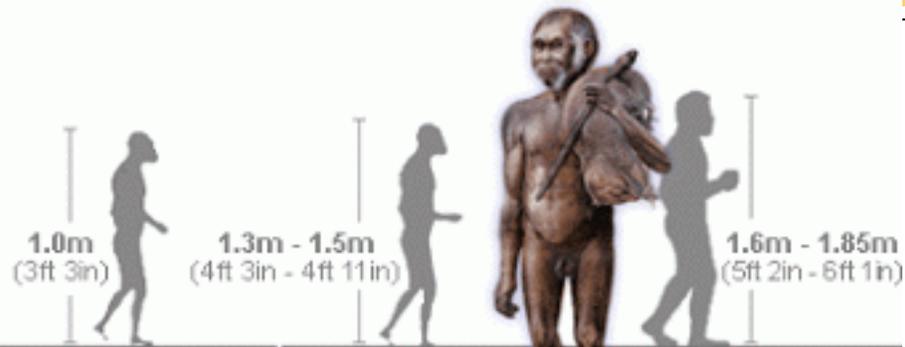
*Homo floresiensis*

*Stegodon florensis insularis*

*Homo sapiens sapiens*

### CONTROVERSEY SURROUNDS INTERPRETATION OF FLORES FOSSILS

1. The hobbit could have been a modern *H. sapiens* that developed a genetic disorder – microcephaly or congenital hypothyroidism. Which spread through the population from inbreeding or genetic drift.
2. They may have become isolated on flores a long time ago and small size developed as a result of insular dwarfism ( island dwarfism).
3. The hobbits could be late-surviving species of early *Homo*, sharing structural similarities with the early



	<b>Homo floresiensis</b>	<b>Homo erectus</b>	<b>Homo sapiens</b>
<b>Brain</b>	380 cubic cm	900cc (archaic) to 1100cc (later)	1200cc (archaic) to 1350cc (modern)
<b>Skull</b>	Similar to <i>H erectus</i> , though with slightly brow ridge	Flat, thick, large brow ridges	Short, high, small no brow ridges
<b>Skeleton</b>	Similar to <i>H erectus</i> , but smaller, very well pelvis, bipedal stance	Robust, suggesting heavy musculature	More slender slighter build
<b>Lived</b>	Remains date 18,000 years ago, possibly existed 800,000 yrs old	c 1.9m years ago to c 25,000 years ago	c 150,000 years ago to present

