

DNA tests reveal gorillas in dire straits

Linda Geddes

MOUNTAIN gorillas are in more trouble than we thought. Fewer of them are living in Uganda's Bwindi Impenetrable National Park (BINP) than previous estimates suggest. This is one of only two places worldwide where the gorillas survive in the wild.

Traditionally, conservationists estimate gorilla numbers by counting nests and examining the dung outside each one. "Each individual constructs a nest to sleep in, and before they leave in the morning, they defecate outside it," says Katerina Guschanski at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany.

According to this method, there are 336 gorillas left in the 331-square-kilometre national park. But when Guschanski's team analysed DNA samples from each pile of dung using a new genetic counting method, the population estimate dropped by 10 per cent to 302. This suggests that some

individuals had been counted twice using the old technique (*Biological Conservation*, DOI: 10.1016/j.biocon.2008.10.024).

"We assumed that each individual constructs a single nest, but genetic analysis shows that several individuals construct more than one nest," says Guschanski. This has been observed in studies of lowland gorillas, who construct more than one nest if the original nest starts leaking during a rainstorm, or if a youngster finds the one that it has just built uncomfortable, she adds.

"It is a great confirmation of what new molecular techniques can do for wildlife censusing," says Marcus Rowcliffe of the Institute of Zoology in London.

It might also mean that the gorilla population in the park is not growing after all – a census in 1997 found 300 gorillas, while one in 2003 found 320 individuals, but these figures may also be inaccurate. "Now we don't really know what is happening with this population," says Guschanski.



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Thin on the ground

"Probably the safest thing is to assume that the population is stable, but we will need to wait for another four to five years to assess how it is changing."

Although it is bad news that the population is slightly smaller than expected, "it is much better to have an accurate estimation of the population", says James Burton of the Earthwatch Institute in Oxford, UK. "Knowing

whether it is increasing or decreasing governs the conservation activities."

The estimate of 380 for the mountain gorillas living in the other main reserve – Virunga National Park in the Democratic Republic of Congo – may be more accurate, as the gorillas are more accustomed to human contact and can therefore be counted directly. ■

Magnetic 'fossils' in stars may be from big bang

THE discovery of magnetic "fossils" around young stars in the Milky Way has boosted the case for the existence of magnetic fields right after the big bang.

If primordial magnetic fields existed, they would have influenced how the universe evolved. For instance, they could have skewed its expansion in one direction.

Now, Claude Catala of the Paris Observatory in France and colleagues believe they have found "fossils" of primordial magnetic fields. The team were attempting to answer a puzzle

in astronomy: why a small fraction of main sequence A/B stars have very strong and ordered magnetic fields. These could have formed via two methods: a traditional dynamo mechanism, due to their rotation, or by inheriting "fossil fields" that existed in the interstellar medium, the gas and dust between stars.

The team focused on the precursors to such stars, known as H Ae Be stars. These are only about 2 to 8 solar masses in size, and are in a stage of evolution in which gas and dust is still collapsing into the star

due to gravity. As these stars are very faint and scarce in our galaxy, it has been impossible to detect and measure magnetic fields in these stars before, says Catala.

The astronomers used the Canada-Hawaii-France Telescope on Mauna Kea in Hawaii to measure the splitting of a star's light spectrum by its magnetic fields and found that H Ae Be stars have fields of a few hundredths of a tesla (www.arxiv.org/abs/0812.3805).

This clearly rules out the dynamo mechanism, as these young stars

"The 'fossil' magnetic fields found around these young stars could indeed be primordial"

have not existed long enough to generate their own fields, so they must have come from elsewhere. "This is completely in agreement with the fossil field theory," says Catala. However, he adds that they are not entirely sure of their origin, "but it could indeed be primordial".

Francesco Miniati at the Swiss Federal Institute of Technology, Zurich, says that the study agrees with the fossil field theory but adds that it does not prove that primordial magnetic fields existed. "It would if we also knew that these stars were primordial first stars, which they are not," says Miniati. Catala agrees, but says that there is no telescope, existing or planned, that could see the first primordial stars, as they