

Extinct ibex is resurrected by cloning

An extinct animal has been brought back to life for the first time after being cloned from frozen tissue.

by **Richard Gray and Roger Dobson**

The Pyrenean ibex, a form of wild mountain goat, was officially declared extinct in 2000 when the last-known animal of its kind was found dead in northern Spain.

Shortly before its death, scientists preserved skin samples of the goat, a subspecies of the Spanish ibex that live in mountain ranges across the country, in liquid nitrogen.

Using DNA taken from these skin samples, the scientists were able to replace the genetic material in eggs from domestic goats, to clone a female Pyrenean ibex, or bucardo as they are known. It is the first time an extinct animal has been cloned.

Sadly, the newborn ibex kid died shortly after birth due to physical defects in its lungs. Other cloned animals, including

sheep, have been born with similar lung defects.

But the breakthrough has raised hopes that it will be possible to save endangered and newly extinct species by resurrecting them from frozen tissue.

It has also increased the possibility that it will one day be possible to reproduce long-dead species such as woolly mammoths and even dinosaurs.

Dr Jose Folch, from the Centre of Food Technology and Research of Aragon, in Zaragoza, northern Spain, led the research along with colleagues from the National Research Institute of Agriculture and Food in Madrid.

He said: "The delivered kid was genetically identical to the bucardo. In species such as bucardo, cloning is the only possibility to avoid its complete disappearance."

Pyrenean ibex, which have distinctive curved horns, were once common in northern Spain and in the French Pyrenees, but extensive hunting during the 19th century reduced their numbers to fewer than 100 individuals.

They were eventually declared protected in 1973, but by 1981 just 30 remained in their last foothold in the Ordesa National Park in the Aragon District of the Pyrenees.

The last bucardo, a 13-year-old female known as Celia, was found dead in January 2000 by park rangers near the French border with her skull crushed.

Dr Folch and his colleagues, who were funded by the Aragon regional government, had, however, captured the bucardo the previous year and had taken a tissue sample from her ear for

cryopreservation.

Using techniques similar to those used to clone Dolly the sheep, known as nuclear transfer, the researchers were able to transplant DNA from the tissue into eggs taken from domestic goats to create 439 embryos, of which 57 were implanted into surrogate females.

Just seven of the embryos resulted in pregnancies and only one of the goats finally gave birth to a female bucardo, which died a seven minutes later due to breathing difficulties, perhaps due to flaws in the DNA used to create the clone.

Despite the highly inefficient cloning process and death of the cloned bucardo, many scientists believe similar approaches may be the only

way to save critically endangered species from disappearing.

Research carried out by Japanese geneticist Teruhiko Wakayama raised hopes that even species that died out long ago could be resurrected after he used cells taken from mice frozen 16 years ago to produce healthy clones.

But attempts to bring back species such as woolly mammoths and even the Dodo are fraught with difficulties. Even when preserved in ice, DNA degrades over time and this leaves gaps in the genetic information required to produce a healthy animal.

Scientists, however, last year published a near-complete genome of the woolly mam-

moth, which died out around 10,000 years ago, sparking speculation it will be possible to synthesise the mammoth DNA.

Professor Robert Miller, director the Medical Research Council's Reproductive Sciences Unit at Edinburgh University, is working with the Royal Zoological Society of Scotland on a project to use cloning on rare African mammals including the northern white rhino.

They have set up the Institute for Breeding Rare and Endangered African Mammals in the hope of using breeding technologies to conserve species including the Ethiopian wolf, the African wild dog and the pygmy hippo.

Professor Millar said: "I

think this is an exciting advance as it does show the potential of being able to regenerate extinct species.

"Clearly there is some way to go before it can be used effectively, but the advances in this field are such that we will see more and more solutions to the problems faced."

A number of projects around the world are now attempting to store tissue and DNA from endangered species. The Zoological Society of London and the Natural History Museum have set up the Frozen Ark project in a bid to preserve DNA from thousands of animals before they disappear entirely.

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Young Spanish ibex (Capra pyrenaica), Sierra de Gredos, Spain



Carmen Electra: 'A Lot of Women Would Die to Look Like Jessica Simpson'

By Steve Helling
And the outpouring of support for Jessica Simpson continues! "She's a gorgeous girl," Carmen Electra told PEOPLE Friday night at the 6th annual Leather & Laces Super Bowl Party in Tampa of her "good friend" Simpson. "A lot of

women would die to look as good as she looks." In fact, Electra believes much of the controversy surrounding Simpson, 28, and her curvier body can be chalked up to the outfit she was wearing the day she performed in

Pembroke Pines, Fla. "There's going to be moments where people don't necessarily like your look or what you're wearing, and that's okay," she says. "Next week, she'll rock some outfit that will blow everyone away."

'SMASHING' PERFORMANCE
Rihanna jump-starts the Super Bowl weekend's festivities with a sexy (and star-studded) concert at the Ford Amphitheatre in Tampa, Fla., on Thursday. The pop star shared the bill at the Pepsi Smash event with Pete Wentz's band Fall Out Boy as Kim Kardashian (not pictured) cheered from the crowd.



IN THE HUDDLE
In the Sunshine State for the Super Bowl, Kim and Kourtney Kardashian get corny, tossing some popcorn – and a pigskin! – around inside the Pepsi Max Lounge at the Ford Amphitheater in Tampa, Fla., on Thursday.



BRANCHING OUT
A tree grows in Orlando? Showing off his extensive tattoo collection – but is it for his role? – Bloom continues work on his latest movie, Sympathy for Delicious, Friday in downtown Los Angeles



INTERNATIONAL RELATIONS
Looking forward to new social opportunities, Paris Hilton goes across the pond with her search for a new BFF, attending a screening of her U.K. series Paris Hilton's British Best Friend on Friday at London's Molton House