



UNDERSTAND DE-EXTINCTION

Mammoths, Tasmanian tigers and even Elvis could soon be brought back from the dead, thanks to intriguing advances in cloning and gene editing. But would they be the real McCoy?

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Imagine travelling to the wilds of Siberia to see a woolly mammoth lumbering through its natural habitat. Or getting up close to a living, breathing Tasmanian tiger. Thanks to developments in cloning and gene-editing technology, the prospect of bringing back extinct animals is looking more likely than ever.

De-extinction is about creating populations of healthy, genetically vibrant animals that can be released into the wild where they'll be able to breed naturally and contribute positively to the environment. But it's not just about bringing back the dead. The same techniques being developed to help resurrect extinct species can also be used to help save living species on the brink of extinction.

So how does de-extinction work, what are its limits, and do we really need to bring back long-dead animals?

How feasible is de-extinction?

De-extinction is very much a science in development, but it's moving at a rapid pace. The first milestone was in 2003 when European scientists resurrected the Pyrenean ibex (or bucardo), a type of mountain goat that had gone extinct a few years earlier. Sadly, the kid died a few minutes after she was born, so the bucardo was not just the first animal to be brought back from extinction, but also the first to go extinct twice.

Since then, scientists have been refining their methods and developing new de-extinction techniques. In Australia, Prof Michael Archer and colleagues are working on bringing back the gastric-brooding frog, a

remarkable animal that nurtured its young in its stomach before burping up fully-formed froglets. So far, the team has produced embryos that 'almost' turn into tadpoles but not quite. The next step is to persuade these embryos to turn into frogs, something that Archer is convinced they will achieve.

What other animals could we make de-extinct?

In America, scientists are working on bringing back the passenger pigeon, a rosy-breasted bullet of a bird that once flocked in the billions; and the heath hen, a stumpy avian wallflower that

lived in the scrubby plains of New England. In the UK, researchers are considering whether or not to bring back the so-called 'Penguin of the North', the great auk. Meanwhile, in South Africa, they're trying to revive the quagga, a bizarre zebra-like creature with a stripeless behind! In South Korea, Japan and the US, three separate teams are racing to bring back that most iconic of Ice Age beasts, the woolly mammoth.

How do you 'de-extinct' something?

It depends on the species. Some projects use 'back-breeding'. Quaggas, for example, are related to living



Scientists are trying to bring back the gastric-brooding frog, which went extinct in the 1980s

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