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De-extinction dilemma: reviving dead species may doom the living

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By **Olive Heffernan**



The resurrection of extinct species may soon be feasible – but expensive
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The resurrection of extinct species, as depicted in the 1993 film *Jurassic Park*, was until recently regarded as pure science fiction. Today, de-extinction looks increasingly feasible and is being heralded as a way of [turning back the clock on](#)

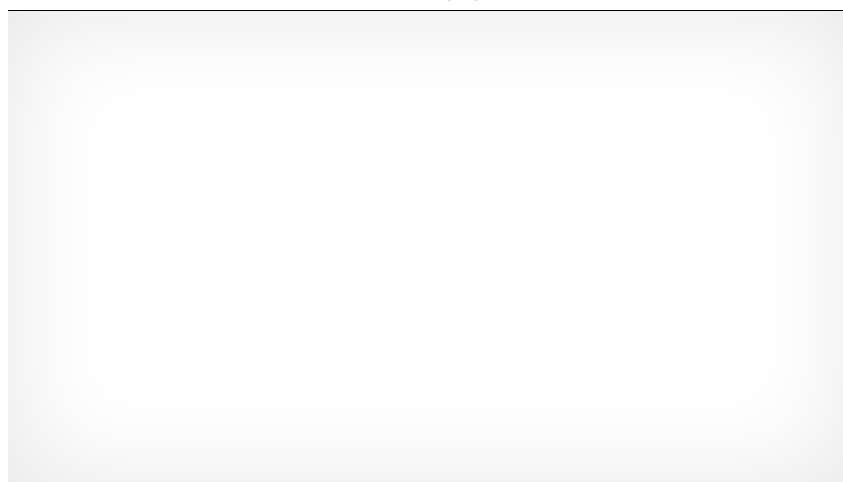
...from today, as extinction rates increasingly accelerate and are being heralded as a key driver of [biodiversity loss](#).

But with scarce resources available for conservation, it may have the opposite effect, increasing the rate of extinction. We must tread carefully.

It's easy to see the appeal of bringing back obliterated creatures. While most of us don't wish to live alongside dinosaurs, who isn't saddened by the loss in recent decades of the platypus frog – the only species to use its stomach as a womb and give birth from its mouth?

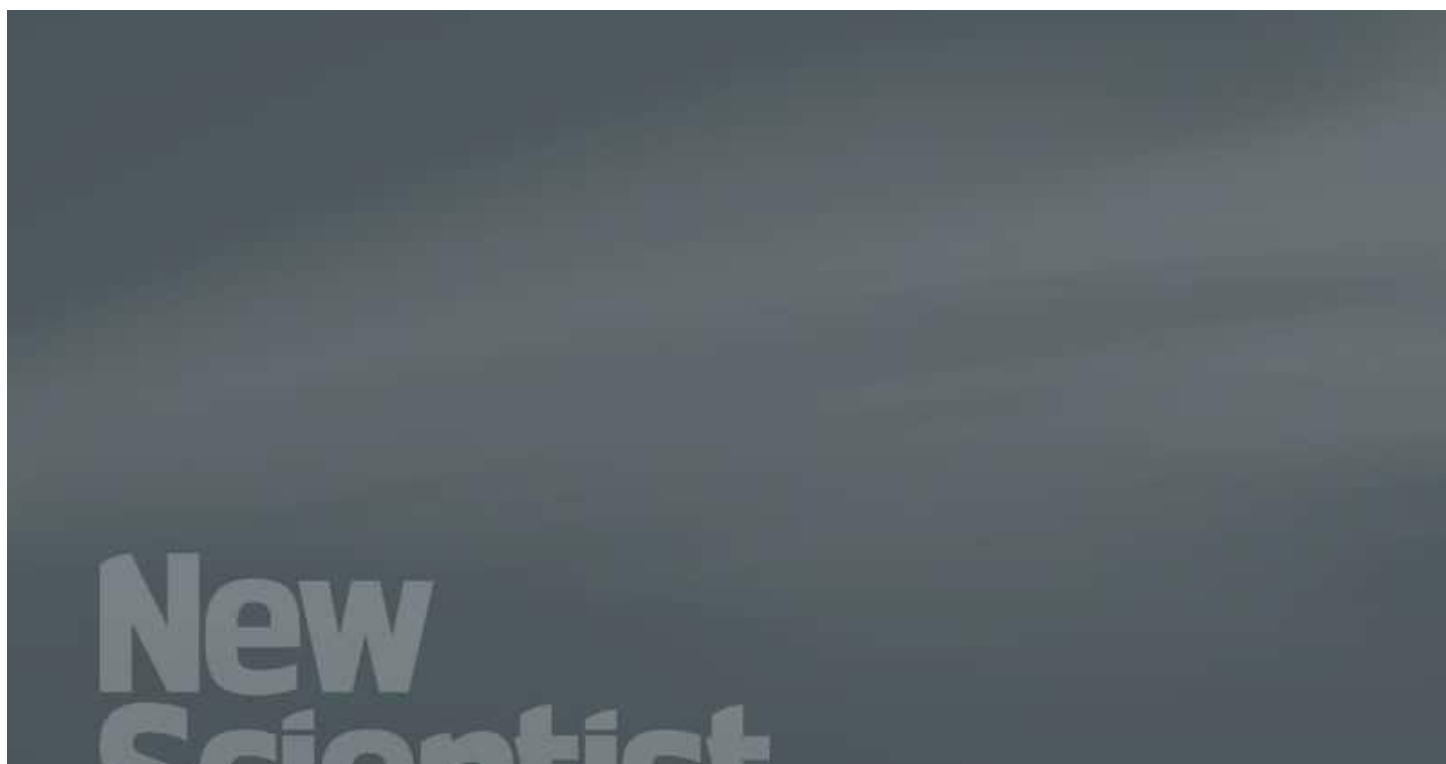
And who wouldn't like to see the skies of North America once again darken with great flocks of [passenger pigeons](#), or wish that the [Tasmanian tiger](#) could live another day in the sun?

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This is not a new idea. But the science to make it possible is suddenly making great strides. Earlier this month, Harvard geneticist George Church claimed he's just two years away from [creating a hybrid woolly mammoth-elephant embryo](#). If successful, it will be the closest thing to a woolly mammoth that Earth has seen for nearly 4000 years.

The embryo would be the result of splicing mammoth characteristics – long shaggy hair, layers of subcutaneous fat and cold-adapted blood – into the genome of an Asian elephant, its closest living relative. The hope is that, eventually, the embryo could develop into a foetus and reach full term. That's still many years away, and will require development of an artificial womb – all at great expense.





Reviving species like the platypus frog reflects a desire to make right the wrongs of our past
Auscape/ULG via Getty

Even then, to be saved from extinction a resurrected species must be reintroduced to the wild in sufficient numbers and then protected. But with each day that passes, as many as [100 more species disappear](#) and so, arguably, that's money that could be better spent on saving living, threatened species.

That trade-off has now been quantified. A new study looks at funding de-extinction over existing species conservation in New Zealand and in Australia's New South Wales and shows that choosing the former could be perilous for the latter, with a net loss of species.

Specifically, it finds the cost of reintroducing and protecting 11 extinct species in New Zealand – eight birds, two plants and a frog – is equivalent to the amount needed to preserve 31 existing species. In New South Wales, funding the revival of five extinct species – two birds, two plants and a marsupial – could pay to conserve 42 existing species.

While there's a benefit to local biodiversity of returning recently extinct species to their former stomping grounds, the simple fact is that there's only so much money in government coffers for conservation, and difficult choices must be made.

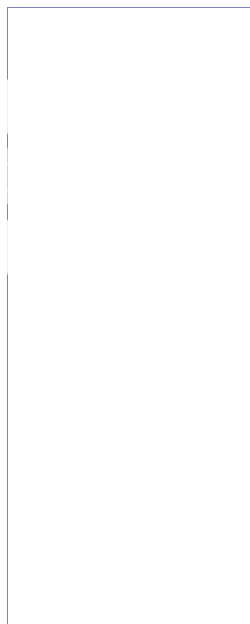
But cost is not the only concern.

The woolly mammoth is long gone. How do we know that a species that lived 4000 years ago would survive in a world undeniably altered by humans? And the mammoth-elephant hybrid would be an analogue, not a replica, of the original – perhaps casting further doubt on its relevance for conservation.

That's not to say that de-extinction will never be worthwhile. Far from being the folly of rogue scientists, it reflects a deeply ethical desire to restore what we have destroyed, to make right the wrongs of our past. But with limited funds and time for conservation, great care must be taken in how this burgeoning ability is used.

[Journal reference: *Nature Ecology & Evolution*, DOI: 10.1038/s41559-016-0053](#)

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