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Resurrecting the Tasmanian tiger may be a noble idea – but what about preserving existing species?

Adam Morton, *The Guardian*, Sun 21 Aug 2022

There is a beautiful, heartbreaking scene near the end of the 2011 movie The Hunter. Shot in Tasmania, the film tells the story of a mercenary hired by a global biotech company to find, take DNA samples from, and destroy a thylacine[1] that is rumoured to have survived deep in the state's wilderness. When the last Tasmanian tiger appears […] at the movie's climax, walking slowly and alone through the snow, the impact of seeing the lost species in its natural habitat is quietly devastating. The mercenary, played by Willem Dafoe, makes an equally devastating, and complicated, choice.

It isn't hard to find people who believe there is truth in the film's central conceit – that the thylacine still lives out there somewhere – but despite hundreds of reported sightings there is no scientific evidence that it survived beyond 1936, when the last known specimen died due to neglect at Hobart zoo. What it has highlighted is how little, in relative terms, we prioritise our existing environment

Since the 1990s, the endless searches for the marsupial in the wilds of Tasmania and Victoria have run alongside another romantic idea – that it can be brought back through genetic engineering. For years, the chief proponent of this idea was Prof Mike Archer, a former director of the Australian Museum who wanted to use DNA from preserved specimens in its collection. That mantle has now passed to the University of Melbourne's Prof Andrew Pask, who in 2017 led a project to sequence a thylacine's genome, a necessary first step.

While the ambition is familiar, what's new is the cash. Earlier this year Pask and his team received a $5m philanthropic gift to set up a thylacine integrated genetic restoration research (acronynm: Tigrr) lab. Last week came the announcement that the lab had partnered with Colossal, a US "de-extinction" company that uses cutting edge CRISPR gene-editing technology, for an even larger sum.

Ambition breeds grand statements, and Pask and Colossal's co-founder, the tech and software entrepreneur Ben Lamm, have their share. Their timeframes differ a bit – Pask is more cautious – but both say the Tasmanian tiger could be back in its homeland within a decade. It sounds fantastic, in both senses. The suggestion by some that it was all a Jurassic Park-style reverie was perhaps not helped by the news that actual movie stars – Chris Hemsworth and his brothers Luke and Liam – were among the funders.

In Tasmania, where I live, it is hard to overstate the conflicted place the thylacine holds in the local psyche. Within a few decades of colonisation, Europeans had mislabelled it a cat, put a bounty on its head based on lies about how many sheep it killed, and hunted it to the edge of extinction. When the last animal died, it was initially ignored. But it is celebrated on the state's coat of arms and used to sell sporting teams, hotels, beer and the island itself. Exploitation has rarely been more thorough.

[1] A thylacine: an extinct or very rare doglike carnivorous marsupial.

The thylacine, of course, was not a tiger, or a wolf. It wasn't a dog either, though it looked a bit like one. It was Australia's only marsupial apex predator, and its place in the landscape remains unfilled a near century on, unless you count feral cats. The scientists behind the recreation project are right when they say its reintroduction could have a positive impact on the ecosystem. In theory, it could just slot back in.

I'm not here to tell you what to think about this project. I'm certainly not here to say whether the plan – to edit stem cells from a living marsupial with similar DNA, probably the mouse-like fat-tailed dunnart, and turn the edited cells into a viable thylacine embryo and baby – will work. Smarter people with more expertise than me differ on that. But it is worth considering some of the questions that could lie ahead.

A key one: to what extent would the recreated animal actually look and behave like a thylacine? The editing process means minor variations on the original genome are probably inevitable. Pask says they are aiming to make a 99.9% Tasmanian tiger, but it may involve some trial and error. Without experience with others of their kind, would test-tube created thylacines know how to behave like wild thylacines?

Some behaviours – hunting, for example – may be hard-wired, and there are examples of human-raised predators being trained before being released into the wild. But nurture has a part to play, and ecologists say it is difficult to know what the absence of a generational imprint would mean, and impossible to predict how a new-model thylacine would interact with its ecosystem.

Can a lab-made thylacine have enough genetic diversity to thrive, or would it end up struggling to sustain a viable population? Pask, who five years ago wrote a paper that showed the thylacine was in poor genetic health before it was hunted to death, says addressing diversity is "nothing compared to bringing the whole animal back" and "really sweating the small stuff", as it could be done by sequencing the genomes of between 80 and 100 specimens. Others, such as Prof Corey Bradshaw from Flinders University, are unconvinced.

The reaction to the project in the scientific community has been mixed, and has included some understandable frustration that money is being spent to resurrect a dead species when hundreds of living threatened species are comparatively ignored.

I look at it slightly differently. As Deakin University Prof Euan Ritchie has said, funding for conservation is not a zero sum game, and the support for de-extinction research has not come at the expense of other environmental protection. It is additional.

What it has highlighted is how little, in relative terms, we prioritise our existing environment. Ritchie gives an example: the previous federal government announced $10m for 100 priority threatened species as native forests continued to be cleared and billions were spent on subsidies to expand fossil fuel industries.

Pask says he hopes his team's research proves worthwhile even if they fail to bring back the thylacine. His wish is that the technology developed can be used to preserve the genetic diversity of the growing list of threatened marsupials that could be wiped out. Which, given the challenges faced, is a noble idea.

I'm perhaps a little more naive. I hope our leaders make the choices needed so we don't have to rely on de-extinction projects to give our wildlife a future.

1. READING COMPREHENSION

Answer the following questions *in your own words.*

- Any passage including 3 or more words in sequence taken from the source, or paraphrase without citation will be penalized.

- 50 words minimum / question.

1. What are the two limits to the resurrection of the thylacine mentioned by the author?

2. Explain what ghostlining is in your own words.

3. Why does the author think that de-extinction projects are carried out at the expense of existing species?

4. Explain the following sentence: “In theory, it could just slot back in.” (l.40)

2. ESSAY

Discuss the statement below (400 words, +/- 10%; use a / every 50 words). Please indicate the number of words at the end of your essay.

I hope our leaders make the choices needed so we don’t have to rely on de-extinction projects to give our wildlife a future.