Dead as a Dodo?

Dr Wayne Carter, University of Nottingham and Biochemical Society representative to the Royal Society of Biology’s Animal Science Group.

Advances in DNA recovery and storage as well as tissue cryobanking have led to the potential for restoring endangered species and the return of extinct species. The de-extinction media storm continues to grow and includes the ‘imminent’ return of the Woolly Mammoth!

The ever-changing environment and impact of pollution is a driving force for biobanks and cryoarks to combat the ongoing need to help preserve endangered species. The establishment of biobanks, including that proposed for the UK, will also provide a central resource of material for genomic investigation. Advances in the science of ‘cryobank’ animal gametes were discussed in detail by Professor William V Holt in a feature in The Biologist.

Somewhat surprisingly, policies to regulate the storage and use of DNA are lagging behind the technology available to copy, maintain, or even initiate ‘gene editing’ of DNA using techniques such as CRISPR.

Attempts at de-extinction have already been made. A Spanish goat (ibex), the bucardo, became extinct in 2000, but cloning of an embryo in 2003 and transfer to a surrogate ibex resulted in a birth, although the cloned calf died within a few minutes.

Although the concept of de-extinction may be attractive to some, not least correcting human-induced extinctions, reintroduction or de-extinction has extensive ethical considerations including potential impact on current ecosystems. The International Union for the Conservation of Nature (IUCN) have set up guidelines for reintroductions and other conservation translocations. They have also produced a report that considers the principles of creating proxies of extinct species as a potential conservation tool, recognizing that the generation of a new species may not exactly match the extinct one.

What is certain is that legislation will need to try and keep pace with technological advances to ensure that the welfare and environmental impact of reintroduction of a potentially ‘alien’ species are fully considered. Fortunately, we are still some way from the reality of a Jurassic Park.

Further reading

- Frozen Zoo® [Accessed 10/01/20 https://institute.sandiegozoo.org/resources/frozen-zoo%C2%AE]
- THE FROZEN ARK PROJECT [Accessed 10/01/20 https://www.frozenark.org/]
- IUCN Guidelines to Reintroduction and Other Conservation Translocations [Accessed 10/01/20 http://www.iucn-whsg.org/node/1471]
- IUCN SSC guiding principles on creating proxies of extinct species for conservation benefit [Accessed 10/01/20 https://portals.iucn.org/library/node/46248]