

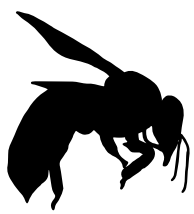
Genetic technologies have the potential to make big changes in conservation and environmental protections, but there are ethical considerations.

ROYAL
SOCIETY
TE APĀRANGI

Genetic technologies in conservation and the environment What to expect and when?

Established

- Reading DNA and studying genes to improve breeding of endangered species



Recently available

- Disease tracking
- Identifying genetic variations responsible for positive or negative traits
- Environmental monitoring
- Gene drives to control or suppress pest species (trial scale)

Gene drive: An approach to controlling pest species where a gene-edited version of a species is designed to infiltrate, breed with, and modify the genetics of a population

What's next? (2 – 10 years away)

- Widespread environmental monitoring using DNA
- Cloning of endangered species from stored tissues
- Vaccination of wildlife with bespoke vaccines for specific diseases
- Gene editing to provide conservation species with resistance to environmental factors
- Gene drives to control or suppress pest species



On the horizon (over 10 years away)

- Gene editing to build resilience against climate change
- Real-time environmental monitoring with DNA
- Stem-cell technologies for wildlife species