



**WG4 webinar for scientists, practitioners,  
managers, and decision-makers on  
genomic & biotechnological  
opportunities for conservation**  
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## **Evolutionary aspects of gene drive technology**

### **Abstract**

The world is facing many challenges today, a significant one being the management of invasive pest species. Invasive pest populations can be harmful for biodiversity, food security, and human health. Genetic population control using gene drive technology could be a promising candidate to help solve this issue. Gene drives are engineered genetic elements that can spread a trait quickly through a population, even when they are designed to control the population by incurring a fitness cost. Although gene drives are widely studied in terms of inherent efficiency and biotechnological feasibility, few studies have focussed on the evolutionary aspects of this technology. So although gene drives might work perfectly in laboratory populations and conditions, we do not yet have the knowledge to assess whether gene drives are reliable and safe in genetically diverse populations too. While the usage of gene drives for biodiversity conservation is already highly debated, it is vital that we first understand evolutionary prerequisites for this technology to work effectively and safely in order to make informed choices for regulation and use.

## **Biosketch for Nicky Faber**

Nicky Faber first got involved in gene drive research during her MSc internship at the University of Edinburgh's Roslin Institute, where she modelled the potential for a gene drive to control the invasive grey squirrel in the United Kingdom. Afterwards, she worked on two similar projects at the Roslin Institute, modelling the honeybee parasite *Varroa destructor* and the invasive Asian Hornet. Currently, she is doing her PhD at Wageningen University & Research on the evolutionary aspects of gene drive technology, using fruit flies as a model organism.