



## The adaptive potential of effectively small and shrinking populations

### Goal

The project aims to use formal models to quantify the ability of effectively small and shrinking populations, such as small breeds of domestic animals or small isolated natural populations, to respond to future selection.

### Background

It is well established that small effective population size is a threat to the survival and adaptive potential of a population. Many local livestock breeds are effectively small to the point that they are seriously threatened. Similarly, natural populations may be shrinking due to anthropogenic disturbance. Yet, it is hard to give an answer to questions about how great the threat is, and what level of adaptive potential there is in a small population. Existing models are often based on neutral evolution and simple population histories.

### Project description

This project will use established models of polygenic adaptation and population histories inspired by real inferences from small livestock breeds, in combination with computational modelling to model the response to adaptation to a shift in optimum, as well as directional selection.

Useful previous knowledge: Some background in population, quantitative or evolutionary genetics. R programming. Interest in conservation of rare breeds, small populations, or evolutionary responses to selection.

Start time: Flexible

### Contact

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