

**Title:** Role of plant mating systems and ploidy on tolerating or adapting to environmental change

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**Brief Description:** Barbara Mable and James Buckley are using *Arabidopsis lyrata* (a member of the Brassicaceae plant family) to study the effects of variation in plant mating systems (i.e. inbreeding vs outcrossing) and ploidy level (i.e. diploid vs tetraploid) on survival and reproduction in changing environments. This includes changes in both the abiotic (e.g. temperature) and the biotic (e.g. changes in pathogen pressures) environments. To test the response of these plants to novel environmental conditions here in Scotland, *A. lyrata* plants collected from a wide range of geographic locations across North America and Europe are being grown in an experimental plot which they have established at SCENE. Samples collected from this common garden experiment will also be used to understand the physiological responses of these plants (i.e. variation in their ‘metabolome’) to novel environments. The researchers are also interested in the evolution of disease resistance across the geographic range of *A.lyrata* and specifically resistance to important pathogens of the Brassicaceae family (which includes crops such as cabbage, broccoli and rapeseed). This project is funded by NERC.

