

M.Sc.-project in Plant Ecology and Evolution:

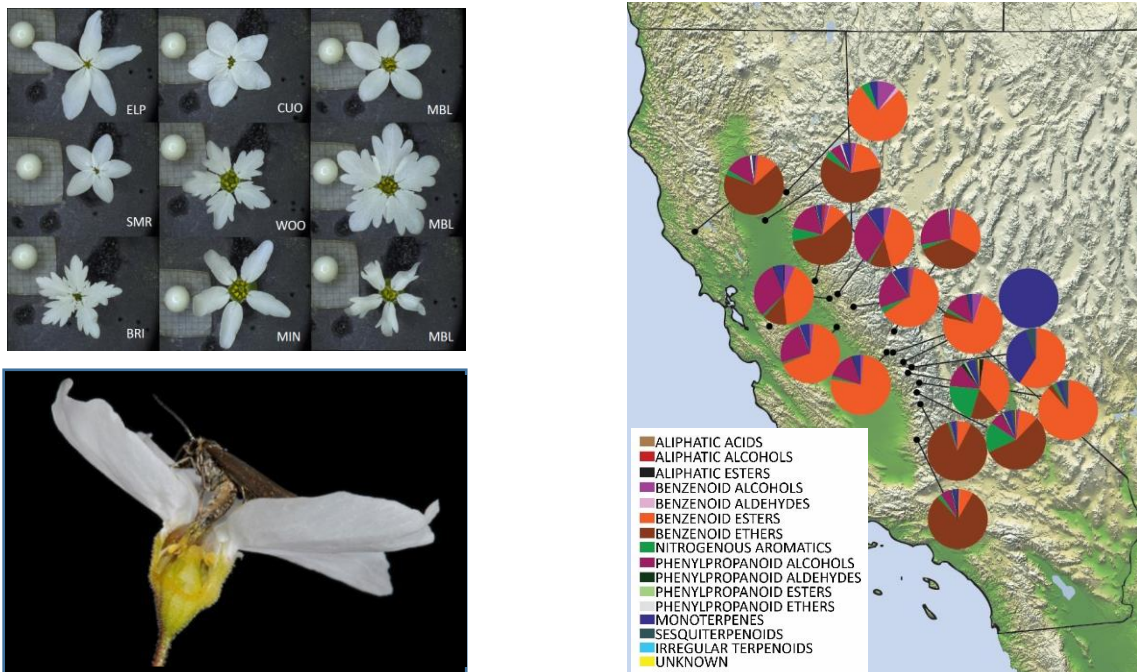
Polyploidy and the evolution of floral traits.

Life on earth is overwhelmingly diverse. To elucidate what causes and maintains this diversity is still a major challenge in evolutionary biology. At the most general level, diversification requires both processes that generate diversity and processes that selectively filter this diversity in different ways in different populations. While random mutations and recombination are the ultimate sources of heritable variation, natural selection and genetic drift filter diversity and thus drive diversification.

The most dramatic form of mutation is polyploidisation, the duplication of the chromosome set. Polyploidy is strikingly prevalent, particularly in flowering plants. A genome duplication immediately induces reproductive isolation via hybrid sterility and thus greatly influences plant speciation and diversification. Diversification is particularly likely if the genome duplication itself directly evoke phenotypic variation that can be immediately subjected to diversifying selection from e.g., pollinators or herbivores.

A current project in the Evolutionary Ecology of Plant-Insect Interactions research group at the Department of Biology, Lund University, investigates the importance of polyploidization for the generating the tremendous floral trait diversity in the polyploidy species *Lithophragma bolanderi* (Saxifragaceae), which has a native range in the Sierra Nevada mountain range of California, USA. Within this project there are ample opportunities for M.Sc.-students interested in studying the evolution of floral traits and plant-insect interactions in the light of whole-genome duplication events.

For more info contact Magne Friberg (magne.friberg@biol.lu.se) and/or visit the research group's web page: <https://www.biology.lu.se/research/research-groups/evolutionary-ecology-of-plant-insect-interactions>



Examples of among-population variation in floral morphology and scent in the polyploidy species *Lithophragma bolanderi*. This plant is involved in a nursery pollination system with the moth species *Greya politella* with varying interaction intensity across its Californian native range.