Diversity of feral oilseed rape populations and their associated insect communities

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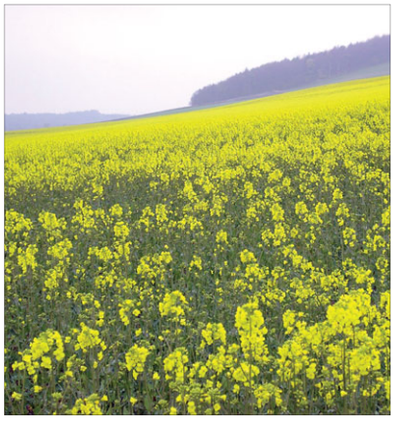
This project aims to characterise phenotypic and genotypic variation in feral OSR populations and study the relations between these populations and the abundance and diversity of associated insect communities.

The experiments



The feral oilseed rape within an established 500 km^2 study area is expanding its range and extending its phenology well beyond that of the oilseed rape crop. The ecological significance of these shifts is being examined in three contrasting localities within the study area. Ferals, crops and wild relatives such as Charlock *(Sinapis arvensis)* are being recorded using a dGPS to enable determination of patch distribution, size and isolation of plant populations.

The effect of these patch characteristics on plant traits and the associated insect communities will be assessed through measurements of

- plant phenotype (height, growth stage, etc)
- insect species abundance patterns, and
- level of herbivore damage.

Leaf and seed samples will be collected for analysis by ISSRs (intersimple sequence repeats) to detect genetic differences between populations. Laboratory analyses will also include assessment of differences in plant chemistry between selected feral populations as a potential explanation for variation in insect herbivore abundance patterns.

Potential mechanisms responsible for determining these patterns observed in the field will be explored through a series of controlled experiments. Insect survival and growth will be monitored to determine the impact of OSR ecotypes on the performance of each insect functional group and the coexistence between them.

The outcome

Oilseed rape is potentially the most important feral weed to have arisen from crops in Europe. Its significance in ruderal ecology and as a potential source and sink of genetic material is still uncertain.

This study will provide a greater understanding of the variation in and the distribution of feral oilseed rape populations and the potential of these populations as a source of both pests and beneficial insects.