Hoverfly diversity supported by vineyards and the importance of ground cover management

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Abstract

The association of hoverflies with vineyards and the response of the species to different types of ground cover management were investigated in two Swiss vineyards sampled using Malaise and emergence traps from March to July 2014. Eight of the 21 species collected in emergence traps, some of them with conservation interest, were identified as having a high association with vineyards. The most diverse fauna was found with ground cover of spontaneous, ruderal vegetation, which provided for, in particular, aphid-feeding species living in the grass-root zone. Plots in which there was no ground vegetation lacked these species. Sowing a grassy mixture of seeds, which resulted in a complete cover of ground vegetation, was not found to promote richness and abundance of hoverflies, and was interpreted as a “barrier” to development of syrphid biodiversity in vineyards. The various ground vegetation treatments studied were found to promote almost only polyvoltine aphidophagous species, except a few phytophagous species and univoltine species whose larvae live in the soil. Thus, management of ground cover in vineyards can have a [...]
Supplement A. Macrohabitats in the two study sites, designed according to Speight and Castella, 2013 (StN Database: content and glossary of terms 2013. Syrph the Net, the database of European Syrphidae. 73, Syrph the Net publications, Dublin, 86 pp.).

Supplement B. SO site.

Supplement C. BE site.

**SO site:**
- Various crops
- Permanent field margin
- *Quercus/Carpinus/Ulmus* forest
- *Salix alba/Populus* gallery forest
- Lowland tall herb communities
- Brook in forest
- Edge of running water in forest

**BE site:**
- Various crops
- Permanent field margin
- *Quercus/Carpinus/Ulmus* forest
- Lowland tall herb communities
- Hedge
Supplement B. SO site.

Study plot at Soral (SO)

Supplement C. BE site.

Study plot at Bernex (BE)