
No significant effect of semi-natural habitats coverage or connectivity on Syrphid abundance and diversity in wildflower compensation areas.

David Bennett*¹

¹Christian-Albrechts Universität zu Kiel – Germany

Abstract

Wildflower compensation areas (WCA) in agricultural ecosystems are becoming increasingly common methods to attempt to conserve wildlife in the landscape. However, little research has been done to determine what factors influence their effectiveness for insect conservation and ecosystem services.

In theory, the quantity of semi-natural habitat and the degree of habitat fragmentation may influence whether insects (including Syrphids) can colonise and utilise wildflower compensation areas. In summer 2021 we performed sampling at 37 WCAs across Schleswig Holstein, northern Germany with yellow pan traps. This was combined with high resolution spatial data on the quantity of semi natural habitats and modelling of habitat fragmentation (using the MESH and Connectance indexes).

Our 2021 results indicated a significant positive relationship between bee species richness and both semi-natural habitat percentage and the two fragmentation indices. We have not yet detected a significant relationship between semi-natural habitat or either habitat fragmentation metric for the richness or abundance of Syrphids (33 species detected across all WCAs). This could indicate that current WCA methods are too narrowly focused on bee conservation, or that the intense decline of Syrphid species in Germany observed in prior studies limits the current usefulness of the WCAs.

We are repeating and expanding the study in summer 2022, and we will also implement an eDNA method for detecting insects visiting wildflower heads (following a successful prototype last year).

Keywords: Wildflower compensation areas, Syrphidae, habitat fragmentation, eDNA, landscape scale conservation

*Speaker