

Role of landscape composition and heterogeneity, at different spatial scales, on coccinellid assemblages and biological control

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The current trend toward simplification of agricultural landscapes and the associated loss of some perennial natural or semi-natural structures may decrease natural enemy's diversity, particularly affecting native species while favoring alien invasive species. This, in turn, could result in a lower biological control service within a given crop. In this conference, I will show the effects of landscape composition and heterogeneity – at different spatial scales – on the diversity and abundance of native and alien coccinellids, and on their ecological services. First, I will show how edges surrounding alfalfa fields influence the abundance and spillover of coccinellids associated with this crop. Second, I will show how different land cover types in central Chile, varying in disturbance intensity (in a gradient from the native sclerophyllous matorral to several intensively managed crops), are differentially used by alien and native coccinellid species. Finally, I will show how landscape composition and heterogeneity, at 250 and 1000 m radius surrounding alfalfa fields, affect the diversity and abundance of native and alien coccinellids and biological control of aphids in this crop.

In general, I will show evidence supporting that, in order to conserve more diverse coccinellid assemblages, more native species, and a more efficient biological control service in agricultural landscapes, these landscapes must be compositional and configurationally heterogeneous. FONDECYT 1100159 and 1140662.

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