OR078
Invasive impacts of the Asian paper wasp across different landscapes
Darren Ward, Ana Ramon-Laca, Fraser Morgan

We have recently completed two projects on the ecological impacts of the Asian paper wasp, *Polistes chinensis antennalis*, an invasive species in New Zealand. Firstly, we developed a hierarchical modelling approach to estimate the extent of its impacts across New Zealand. We used a baseline distribution layer modelled via MaxEnt; paper wasp nest density (from >460 field plots); and rates of foraging intensity. Using geographic information systems this data is combined and modelled across different landscapes. The highest densities of Asian paper wasps were in herbaceous saline vegetation (nests densities of 34 per ha, and occupancy rates of 0.27), followed closely by built-up areas, and then scrub and shrubland. However, the extent of impacts of the Asian paper wasp in New Zealand remains relatively restricted because of narrow climate tolerances and spatial restriction of preferred habitats. Secondly, we used molecular techniques for determining the prey of paper wasps, based on removing paper wasp larva from the nest and examining their gut contents using COI. A total of 42 taxa were identified from 211 samples. Lepidoptera were the majority of prey, with 91% of samples. Conclusive species-level identification of prey was possible for 66% of samples, and genus-level identification for another 12% of samples. Small differences in diet were evident between urban and native habitats. The results greatly extend the prey range of this invasive species, and we believe is a more effective and efficient technique than relying on the collection of pellets, or morphological identification of prey, for the study of paper wasp diets. Ward DF, Ramon-Laca A. 2013. Molecular identification of the prey range of the invasive Asian paper wasp. Ecology and Evolution. DOI:10.1002/ece3.826 Ward DF, Morgan F. 2014. Modelling the impacts of an invasive species across landscapes: a hierarchical approach. Submitted PLOS.