THE UNIVERSITY OF WESTERN AUSTRALIA

MEDIA STATEMENT **Wednesday 18 June 2014**

Wheatbelt Bee And Wasp Networks May Signal Global Change

Social networking is a buzz phrase right now, but a young researcher at The University of Western Australia is more interested in bee and wasp networks in the wheatbelt – and one offshoot of his work will be a greater knowledge of the native pollinators and pest-controllers operating in farming landscapes.

Mark Murphy, from UWA's School of Animal Biology, has been working at 48 sites of remnant bushland on farmland around Brookton, Corrigin, Narrogin, Pingelly and Wagin as part of an Australian Research Council Discovery project. He hopes to determine the effects of land-clearing and declining rainfall in one of the world's biodiversity hotspots, which boasts thousands of species of native bees and wasps - many undescribed.

But he also hopes that his findings will add to farmers' knowledge about their remaining woodland and perhaps encourage them to retain areas of bush alongside crops and pasture and make use of naturally occurring insect predators to control on-farm pests, much as gardeners make use of companion planting.

Mark, from Ireland, said land use impacts in the WA wheatbelt region are more acute than in many other parts of the world. "Wheatbelt soils are very old, nutrient-poor and more sensitive to disturbance," he said. "In contrast, in much of Europe forests were cut down a long time ago but the land is generally more resilient to clearing impacts. Coupled with significant recent rainfall declines, this has likely placed severe stress on remaining ecosystems in the region."

He is focussing on insect interactions in his research – rather than just measuring biodiversity – as interaction networks can give more information about how species depend on and relate to each other, for example in plant-pollinator, host-parasite and predator-prey relationships. Mark is hoping to identify any changes in network structure that may alert conservationists to potential future losses of interactions and species.

"Many people understand the importance of pollinators, but parasites and predators are also essential because they control populations of other insects and can contribute to the stability of a system and therefore their networks can provide useful conservation information," he said.

Using 960 unique-to-the-project 'trap nests' in which bees and wasps build their nests, and 288 pollinator vane traps over the 48 sites, Mark and his team have collected thousands of specimens, some smaller than a pin-head, others bigger than a honeybee – all in areas of varying vegetation cover and rainfall change.

MEDIA REFERENCE

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