

# RESEARCH DIRECTIONS

## Bugs that ate a fragile woodland

**Dr Markus Riegler, of the Hawkesbury Institute for the Environment, will lead a team of researchers investigating what is killing Grey Box eucalypts on the Cumberland Plain in Western Sydney. The project, which has been assisted by the New South Wales Government through its Environmental Trust and in partnership with the Royal Botanic Gardens and Domain Trust, aims to develop measures to try to conserve this once dominant tree species.**

'The widespread and ongoing defoliation of Grey Box (*Eucalyptus moluccana*) in the Cumberland Plain Woodlands (CPW) of Western Sydney has resulted in extensive canopy dieback and tree mortality, says Dr Riegler. 'Given the importance of the Grey Box tree species within the woodlands, this ecological community is at risk of extinction.'

The Cumberland Plain Woodlands is a significant habitat that occurs throughout and alongside Australia's largest human population centre. The dominant Grey Box is an important source of nectar and pollen for bees, native insects and birds (including the endangered swift parrot and regent honeyeater). It also supports flying foxes and koalas. Grey Box defoliation is known to be caused by a previously undescribed species of the family of Psyllidae (jumping plant-lice). Past land clearing and subsequent natural (or assisted) re-growth may have resulted in "genetic bottlenecks" which can cause plant susceptibility to pests and other environmental stressors.

This project will explain the characteristics and genetic diversity of the Grey Box. It will investigate psyllid population dynamics and genetics and its expansion potential – there are significant stands of Grey Box in other parts of NSW and Queensland. An assessment of natural enemies of the psyllid, such as parasitic wasps and fungi and predatory arthropods, will help to develop novel management strategies for psyllid outbreaks on eucalypts.



In 1877, Cumberland Plain Woodlands covered 107,000 hectares, or about 30 per cent of the Sydney Basin. Farming and urban development have seen it shrink to 6400 hectares. Ecological and sustainability issues around the defoliation of the CPW have been widely reported. This outbreak threatens biodiversity and ecosystem function, and has biophysical consequences, including changed local climate and increased soil salinity. Research will open opportunities for natural pest control, with the aim of restoring woodlands' health.

**Project Title:** Psyllid-induced dieback of Grey Box (*Eucalyptus moluccana*) on the Cumberland Plain  
**Funding has been set at:** \$415,000

**Research Team:** Professor James Cook, Dr Ben Moore, Dr Paul Rymer, UWS; Dr Brett Summerell, Royal Botanic Gardens and Domain Trust and Peter Cuneo, Australian Botanic Garden

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