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The genetic diversity of fig trees

Dr Paul Rymer, Professor James Cook and Dr Jane DeGabriel from the Hawkesbury Institute for the Environment have been granted funding from the Australian Flora Foundation Inc., to characterize the genetic variation amongst Moreton Bay fig trees.

'The Moreton Bay fig tree is among one of the most iconic Australian trees,' says Dr Rymer. 'Fig trees are found along the east coast of Australia and in an isolated population on Lord Howe Island, about 580 km off the east coast of Australia. The mainland, the free standing or strangler form is found along the east coast, from the Sydney Basin to south-east Queensland, while the Lord Howe Island endemic banyan form has no obvious main trunk. Understanding of the origin and maintenance of biodiversity is essential for the development of theoretical and applied fields in evolution, ecology, and conservation biology. Humans have extensively altered this natural system, creating new barriers to gene flow (habitat fragmentation) and assisting migration (extensive planting). This has potential consequences for the conservation of local gene pools or lineages, and the ability to cope with climatic change and pests and diseases.'

Fig-pollinators are known to be exceptional dispersers, moving tens to hundreds of kilometres by passive "planktonic" transport in winds at high altitudes. Fig seeds are dispersed by frugivores like birds and bats that can also travel long distances. Both the pollinator and seed dispersers are, however, attracted to specific plant attributes, such as floral volatiles, which may be structured over finer spatial scales and reinforce local adaptation.

This project combines population genetics with ecological experiments to determine historical patterns of population isolation and migration, the potential and effective genetic exchange planted trees, and the association of plant traits with

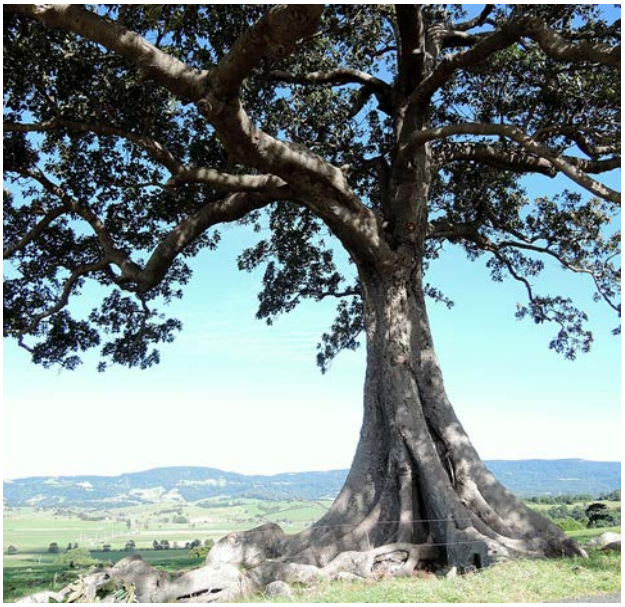

Photo courtesy of Desi Quintans, PhD candidate.

environment and genotype.

The findings will inform land managers efforts to conserve local and regional biodiversity in this important species. The project will develop specific guidelines for the nursery industry to (1) avoid genetic contamination of local gene pools, and (2) enhance resilience to pests/diseases and climate change.

Project Title: Moreton Bay fig: distribution of native genetic variation and threats from cultivation
Funding has been set at: $13,000
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