

Natural pollen diversity a key to sustaining forest resource

While big leaf mahogany (*Swietenia macrophylla*) is the world's most prized mahogany timber, its native habitat is being destroyed by unsustainable timber operations, particularly in Central and South America. However, pollen analysis by University of Adelaide researchers could help protect the threatened species from extinction.



Credit: [branto on flickr](#)

The research – published online in *Ecology Letters* – found that the extensive exploitation of mahogany forests has reduced the diversity and availability of the species' pollen. This in turn has limited the ability of individual trees to grow and cross-fertilise other mahogany trees.

The data, collected across seven Central American countries, show that trees remaining in cleared forest areas suffer from too much self-fertilisation and low pollen diversity, according to lead author Martin Breed, a PhD student with the university. This results in less competitive seedlings and a reduced rate of re-growth.

Mr Breed says that restoring forests would require replanting key species and finding good-quality seeds from healthy trees.

‘Growing new mahogany trees has proven a major challenge in the past. By better understanding the importance of pollen diversity, we hope this research provides the key to restoring forests at a much higher rate.

‘Ensuring seed is collected from healthy populations will improve our chances of protecting not only mahogany, but the hundreds of other species – and human communities – that rely on it.’

Co-author [Professor Andrew Lowe](#), Director of the Australian Centre for Evolutionary Biology and Biodiversity at the University of Adelaide, says: ‘Aside from being one of the world’s most prized timbers, every mahogany tree provides habitat for hundreds of animals and plants, so they’re ecologically very important.’

He adds that this discovery could change the way we think about restoring forests and shows us why it is vital to protect areas of high conservation value.

‘Preserving areas where large populations of species have existed for the longest time not only assures the future of these iconic sites, but also provides insurance for entire species beyond the sites themselves,’ Professor Lowe says.

Dr Carlos Navarro, employed by CATIE (the Tropical Agricultural Research and Higher Education Center) in Costa Rica, was primarily responsible for directing fieldwork and collection of leaf and seed material used in the analysis and for carrying out growth assessments.

Source: University of Adelaide

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