Barrell on… how science and collaboration can help city trees

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Barrell on …

how science and collaboration can help city trees

Brisbane is hot and its people need trees for heat relief, so when an aggressive fungus, *Phellinus noxious*, began killing its biggest figs in 2006, the city reacted with a corporate programme to stop the rot.

A collaboration between Brisbane City Council, Australian research company ENSPEC (www.enspec.com) and fungal scientist Professor Dr Francis Schwarze (www.mycosolutions.swiss.en) based in Switzerland focused on an antagonistic fungus genus, *Trichoderma*, and the result has the potential to change the world of tree pest management.

The starting premise is that nature is out of balance in cities because of a lack of species and structural diversity. With fewer ecological niches, pathogens have an edge because the biological controls found in the natural environment are often missing. Tree killers such as Phellinus in Australia and Singapore, and honey fungus (*Armillaria*) in the UK, have an unfair advantage, driving premature tree removal, with the knock-on adverse impacts on human health and well-being.

Antagonistic fungi are naturally occurring "tree-friendly" species that outcompete other more harmful fungi. It is not a new idea, but in the past its application to control tree pests was unfocused and ineffective against the nastiest tree diseases.

What is new about Professor Schwarze's approach is a refined process to identify the most lethal, naturally occurring fungal strains in a local area. These are then cultured in the lab to provide tailor-made biological weapons that are most effective against specific local pathogens in the field.

In the past, arborists relied heavily on snake oil and charms such as wound paints, fancy fertilisers and chemical concoctions to combat tree pests, but the results were always the same. None of it worked and trees continue to prematurely die, despite our best efforts. This targeted site specific approach provides arborists with a natural alternative to flooding the environment with biocides, but such tailoring comes at a price.

As a one-off solution the cost may be prohibitive, but if the various tree interest groups in an area get together following the Australian model then it could become more attractive. Collaborations are difficult to organise but the prospects of eradicating these pathogenic killers, giving infected trees the chance of a full recovery, may be a carrot too big to ignore for visionaries looking to make their mark.