SANBI ISP Team Member: Prof John Wilson
Main University Supervisor: Dr Trudy Paap/Prof Mike Wingfield
Region: National, ideally based in Pretoria at the Forestry and Agricultural Biotechnology Institute (www.fabinet.up.ac.za)
Level of project: Post-doctoral
Working title: Monitoring tree health at sentinel sites: botanic gardens and arboreta

Background

Worldwide pests and pathogens represent major threats not only to commercial forestry and agricultural crops but, as seen from an increasing number of cases, also to urban and natural forests (e.g. see the 21 August 2015 issue of Science). While it is challenging to respond to such incursions, improving surveillance (and in particular global co-operation in surveillance) is likely to have significant benefits (Wingfield et al 2015). A key challenge is that many introduced organisms are not damaging in their natural environments or were unknown to science prior to their arrival in a new environment, therefore, could not have been regulated against or detected and stopped at checkpoints. In response there has been a move towards the use of 'sentinel plantings' as an early warning system to identify new pest and pathogen threats (Paap et al 2017, Eschen et al 2018).

In 2016 a projected was initiated under the framework of the International Plant Sentinel Network IPSN (www.plantsentinel.org) to improve surveillance and identification of new and emerging pest risks in South Africa by using botanical gardens and arboreta as sentinel sites for tree health monitoring. The project will build on issues identified in the gardens in the previous 2 ½ years.

Key tasks

- Interact with botanical garden staff to build capacity to detect and manage tree pests and pathogens
- Provide a status report on pests and pathogens in the gardens
- Assist with consolidating quarantine lists of pest and pathogens
- Investigate and work on new records of naturalisation as appropriate

This is a project suitable for post-docs with strong field experience in plant pests and / or pathogens who is interested in interacting with stakeholders.

Key contacts

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Further Reading

Eschen, R., O'Hanlon, R., Santini, A., Vannini, A., Roques, A., Kirichenko, N., Kenis, M., 2018. Safeguarding global plant health: the rise of sentinels. Journal of Pest Science. https://doi.org/10.1007/s10340-018-1041-6.

Paap, T., Burgess, T.I., Wingfield, M.J., 2017. Urban trees: bridge-heads for forest pest invasions and sentinels for early detection. *Biological Invasions*, **19**, 3515-3526.

Wilson, J.R.U., Ivey, P., Manyama, P. & Nänni, I. (2013) A new national unit for invasive species detection, assessment and eradication planning. *South African Journal of Science,* **109,** (5/6) 13 Pages.

Wingfield, M.J., Brockerhoff, E.G., Wingfield, B.D. & Slippers, B. (2015) Planted forest health: The need for a global strategy. *Science,* **349,** 832-836.