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Three undescribed pathogenic *Phytophthora* taxa from the south-west of Western Australia.

Alexander Rea^{1,4}, Thomas Jung^{1,2}, Michael Stukely³, Treena Burgess¹ and Giles Hardy¹

¹Centre for *Phytophthora* Science and Management, School of Biological Sciences and Biotechnology, Murdoch University, 90 South Street, Murdoch 6150, WA, Australia.

²*Phytophthora* Research and Consultancy, Thomastrasse 75, D-83098 Brannenburg, Germany.

³Vegetation Health Service, Science Division, Department of Environment and Conservation, Locked Bag 104, Bentley DC 6983, WA, Australia.

⁴Cooperative Research Centre for National Plant Biosecurity, LPO box 5012, Bruce, ACT 2617, Australia.

The *Phytophthora* culture collection of the Vegetation Health Service of the Department of Environment and Conservation of Western Australia (WA) has been re-evaluated using DNA sequencing (Burgess et al., 2009). This has revealed many undescribed taxa previously classified as known morpho-species, one of which has recently been described as *P. multivora* (Scott et al., 2009).

The aim of this study was to describe three of these taxa, all of which occur in WA native ecosystems. They were compared with both the morphological species to which they are most similar and their closest phylogenetic relatives. In addition, the pathogenicity of these taxa was assessed in glasshouse trials. *P. taxon lateriticola* has been isolated from revegetated bauxite mine-pits and undisturbed sites in the jarrah (*Eucalyptus marginata*) forest. The distribution of this taxon appears to be restricted to this ecosystem. It belongs to ITS clade 2 of Cooke et al. (2000) and is most closely related to the nursery pathogens *P. bisheria*, *P. frigida*, and *P. mutilvesiculata*. This pathogen of *Eucalyptus* and *Banksia* appears to have been introduced to WA, as indicated by the *cox1* sequence data. *P. taxon kwonganina* and *P. taxon arenaria* occur in the Kwongan vegetation of the sandplains to the north and south of Perth. They reside in clades 9 and 4 (Cooke et al., 2000), respectively. Both taxa are pathogens of proteaceous plant species, particularly *Banksias*.

All three taxa are homothallic with paragynous antheridia, and have a large oospore wall index possibly indicative of adaptation to the seasonal extreme heat experienced in the ecosystems in which they occur. This study highlights the utility of DNA sequencing as a tool for delineating species where morphological identification is ambiguous, and indicates that both introduced and endemic *Phytophthora* species may be present in different ecosystems in the south-west of WA.

References

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