

# Pythiaceus Fine Feeder Root Pathogens Associated With *Eucalyptus gomphocephala* (Tuart) Decline in Southwest Western Australia<sup>1</sup>

Peter M. Scott,<sup>2,3</sup> Bryan L. Shearer,<sup>4</sup> Paul A. Barber,<sup>2,3</sup> and Giles E.St.J. Hardy<sup>2,3</sup>

## Abstract

*Eucalyptus gomphocephala* is a keystone canopy species endemic to a narrow (5-10 km wide) coastal strip approximately 300 km in length in south-west Western Australia. *Eucalyptus gomphocephala* is undergoing a significant decline that was first identified as a spot decline in 1994 and now occurs throughout large sections of its remnant distribution within Yalgorup National Park, in some areas resulting in 100 percent mortality. Multiple factors, including soil-borne pathogens, have been identified as possibly contributing to the decline. Fewer fine roots are associated with trees on declining sites compared to those on healthy sites. Foliar analysis indicates that declining trees have lower concentrations of some micronutrients, including zinc, which uptake is typically impaired by fine feeder root loss. A range of Pythiaceus microorganisms have been isolated from declining roots and these may be contributing to the loss of fine roots. Glasshouse trials are currently underway to determine whether these isolates are indeed pathogenic.

---

<sup>1</sup> A version of this paper was presented at the Fourth Meeting of IUFRO Working Party S07.02.09, Phytophthoras in Forests and Natural Ecosystems, August 26-31, 2007, Monterey, California.

<sup>2</sup> Centre of Phytophthora Science and Management, School of Biological Science and Biotechnology, Murdoch University, Murdoch, Western Australia 6150, Australia.

<sup>3</sup> Tuart Health Research Group, School of Biological Science and Biotechnology, Murdoch University, Murdoch, Western Australia 6150, Australia.

<sup>4</sup> Science Division, Department of Environment and Conservation, Locked Bag 104, Bentley Delivery Centre, WA 6983, Australia.

Corresponding author: P.Scott@murdoch.edu.au.