

MWP – Young Researcher Abstract 2026

Project title: Emerging Cryphonectriaceae pathogens threaten plantation-grown <i>Eucalyptus</i>	
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Abstract (approx. 200 words): Emerging diseases caused by species in the Cryphonectriaceae threaten the productivity and sustainability of <i>Eucalyptus</i> plantation forestry globally, particularly in the tropics and Southern Hemisphere where non-native <i>Eucalyptus</i> species are intensively propagated and managed. Despite their increasing importance, the biology, epidemiology, evolutionary origins, and pathways of spread of many of these pathogens remain poorly understood. Many of these fungi occur on native woody plants and are increasingly recognised as undergoing host shifts to susceptible plantation-grown trees. Genomic and population genetic tools provide powerful opportunities to better understand the diversity, reproductive biology, movement, and evolutionary potential of these pathogens. My research integrates field-based disease surveys, fungal systematics, whole-genome sequencing, comparative genomics, and population genetic approaches to investigate Cryphonectriaceae pathogens that threaten <i>Eucalyptus</i> plantation systems in the Global South. Particular emphasis is placed on understanding pathogen movement at both local and intercontinental scales, as well as the evolutionary processes underlying pathogen emergence and adaptation. Using a number of case studies, I am able to demonstrate the growing importance of fungal genomics in advancing the understanding of emerging diseases of <i>Eucalyptus</i>, particularly how these approaches provide new opportunities to predict disease risks, track pathogen movement, and support sustainable plantation forestry.	
Key words: emerging tree diseases; fungal genomics; population genetics; host shifts; pathogen movement; forest biosecurity; plantation forestry	