NRM Regions Australia Submission
Review National Threat Abatement Plan for Disease in Natural Ecosystems Caused by *Phytophthora cinnamomi*

Thank you for the opportunity to respond to the five-year Statutory Review of the National Threat Abatement Plan (Pc. NTAP) for Disease in Natural Ecosystems Caused by *Phytophthora cinnamomi*.

NRM Regions Australia is the national representative body of Australia's 54 regional NRM organisations. Our members cover all of Australia and are major partners in the delivery of the Australian Government's National Landcare Program.

The following provides key responses to the Pc NTAP actions that are within the purview of a NRM Regions Australia from a national perspective. Individual regional NRM organisations have advised their intent to make independent submissions from a regional perspective. The following submission is based on information gathered through consultation with industry-bodies and regional NRM organisations. The opportunity for NRM Regions Australia members to have input was promoted through an online platform and in a regular Community of Practice meeting.

Responses to actions

NRM Regions Australia has provided comments on select relevant Pc NTAP actions. An assessment of the achievement of different actions has not been provided as this is more relevant to stakeholders directly engaged in delivery actions.

Action	**Stakeholder Comment**
Action 1.1: Identify impacts and prioritise flora, fauna and communities at risk to inform Phytophthora dieback management.	A systemic approach to identifying and prioritising assets and their risks at a national level would be beneficial to guide investment and on-ground actions. The framework developed in Western Australia provides a sound exemplar for how this may be adapted and adopted at a national scale. A formal and independent review of the WA framework and the outcomes achieved from management should be undertaken as a precursor to a national rollout.
Action 1.2: Identify areas at risk of infection spatially to generate lists of biodiversity assets vulnerable to Phytophthora dieback— develop or use existing prioritisation frameworks.	
Action 1.3: Identify priority biodiversity assets and areas for protection at a local scale—develop or use existing prioritisation frameworks.	
Action 1.5: Develop a national framework for strategic investment in the management of Phytophthora dieback to ensure a uniform approach to management across industries and tenures.	
Action 2.2: Implement risk mitigation and management actions to protect priority biodiversity assets (as identified under Objective 1) from the impacts of Phytophthora.	Investment in containment, exclusion and restoration activities can be better prioritised and coordinated across different funding programs that have association with Pc by Federal and State governments. This is especially relevant

	given the absence of implementation focused investment within TAPs.
Action 2.3: Implement risk mitigation and management actions to minimise the extinction risk of threatened flora and ecological communities.	The priority for investment in threatened flora receives notably lesser focus than the threatened fauna that rely up on them in Federal and State funding programs. Given the importance of reducing habitat loss and fragmentation to avoid animal extinctions, the reduced investment in threatened flora is difficult to justify.
Action 2.4: Develop and implement practices to minimise the inadvertent spread of Phytophthora to priority biodiversity assets.	See response to Action 1. Significant IP is held on the different vectors and risks associated with inadvertent spread in jurisdictions such as WA, Victoria and Tasmania that can be better shared.
Action 2.5: Integrate management of Phytophthora dieback with other natural resource management systems, especially fire management, including emergency suppression protocols, and prescribed fires.	Established hygiene protocols exist in various jurisdictions that could be consolidated and standardised Nationally.
Action 2.6: Promote use of guidelines to minimise risks from Phytophthora arising from environmental restoration activities, including Australian Government funding programs.	
Action 2.7: Encourage implementation of Phytophthora management actions in national recovery plans for EPBC-listed threatened species and ecological communities.	Further work could be done to align with the activities within federal programs, such as those funded by the National Heritage Trust.
Action 3.1: Develop and implement a national communications strategy to raise awareness of the threat of Phytophthora dieback and the importance of behaviour change to prevent spread.	Established Pc engagement and communications plans and training programs (Green Card) exist in various jurisdictions that could be supported to be promoted and extended Nationally. Extended and compulsory training could result in further resources for future Pc control (see below for details).
Action 3.2: Develop and implement training and education that is accessible to all stakeholder groups and targets positive behaviour change. Stakeholder groups include but are not limited to community, traditional owners, industry, government and non-government organisations.	
Action 3.3: Ensure that mapping and guidelines (including codes of practice and standard operating procedures) for managing Phytophthora are available to key stakeholders and are implemented, reviewed and updated.	The Dieback Information Data Management System (DIDMS) and supporting protocols are a proven mechanism for mapping and utilising data but underused nationally.
Action 3.4: Develop or adopt a national system of signage and alerts to guide park visitors and land managers in affected priority protection areas.	The integration of tools like DIDMS with alerts for stakeholders, and collective messaging of other pathogens requires a strong focus which has not been adequately developed.
Action 3.6 Integrate messages about Phytophthora hygiene measures into materials addressing multiple pest and pathogen threats.	

Action 4.1: Undertake a thorough review of the science on Phytophthora biology, epidemiology, prioritisation and its implications for management of Phytophthora dieback. Undertake further or new research on: • developing new and effective treatments for the disease that minimise collateral impacts (including potential off- target impacts of phosphite application) • eradication methods for a variety of soil types • techniques to develop resistance and resilience in vulnerable species and communities.	Consideration could be given to genome mapping of susceptible species and the selection of resistant traits for functional habitat restoration within areas of established disease.
Action 4.2: Encourage new partnerships (e.g. through the Australian Research Council, forestry, mining and nursery industries, philanthropists) to support the funding of research relating to the management of Phytophthora dieback.	Given the vector risk associated with public use, the greater investment should be borne by public funds. However, greater investment could also be provided by commercial users of public resources (tourism operators) and international visitors (through more equitably distributed passenger movement charges). Investment could be generated by requiring commercial operators to undertake hygiene training provided by NGOs (i.e. DWG).
Action 4.3: Increase understanding of pathogen distribution and expression, and factors affecting this (including climate change, microclimate, fire, feral animals, herbivory and other threats).	Supported in relation to climate change, fire and feral animal control. Greater investment in hazard dispersal mapping and modelling is required.
Action 4.4: Undertake susceptibility/natural resistance screening of priority species.	See comments for 4.1
Action 4.5: Develop improved techniques for rapid diagnosis of Phytophthora infestation for all stakeholders (e.g. building on existing efforts for detection via water sampling, testing large volumes of soil (or quarried material) or remote methods such as use of digital multi-spectral imagery).	Support is required for expanded surveillance through better and more widely used diagnostic tools. A national approach could streamline/fast-track interpreter training for broader application. Novel approaches such as detector dogs could be used to decrease time taken to verify presence/absence of dieback in high-rick activities such as with earthmoving equipment used during fire responses.
Action 4.7: Develop methods for restoration of priority sites that are degraded by Phytophthora dieback.	See comments for 4.1
Action 4.9 Undertake social research to determine the level of public awareness of the threat, uptake of messages and subsequent behaviour change.	See comments for 3.1 and 3.2