

# RISK ASSESSMENT IN THE MANAGEMENT OF *PHYTOPHTHORA CINNAMOMI* FOR BIODIVERSITY CONSERVATION

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## INTRODUCTION

Disease in natural ecosystems caused by *Phytophthora cinnamomi* is listed as a key threatening process under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). A project funded by the Commonwealth Government stemming from the National Threat Abatement Plan (1) sought to develop:

- national best practice benchmarks for the management of *P. cinnamomi* (2), and
- a process and criteria to assess the risk to biodiversity from *P. cinnamomi* (3).

The current processes for risk assessment and setting priorities for *P. cinnamomi* threats in Australia vary in their level of development and methodology. This paper describes the development of a risk assessment framework suitable for national adoption.

## MATERIALS AND METHODS

The risk assessment was undertaken under the guidance of a national panel of experts in the research, policy and management of *P. cinnamomi*.

A review of risk assessment in natural resource management and current databases of information on the distribution of *P. cinnamomi*, susceptible and threatened taxa, provided the basis for the development of a risk assessment process. The absence of quality empirical data led to the development of a risk assessment framework that utilised expert opinion and predictions.

Risk assessment models were developed using a semi-quantitative scoring system which enabled a ranking of assets according to the risk posed by *P. cinnamomi* and the perceived ability to manage the risks.

Models were developed for natural assets: i) flora ii) fauna habitat iii) vegetation communities and iv) areas. The models consider the conservation status of species/communities according to the EPBC Act, State listing, or IUCN criteria.

The models were tested by the panel and a stakeholder group, consisting of natural resource managers responsible for the management of threatened biodiversity assets.

Two scores calculated by the models were 'risk' the likelihood and consequence of an infestation by *P. cinnamomi* and 'manageability' the potential to manage the risks identified.

The risk score is calculated by considering the susceptibility of the vegetation to *P. cinnamomi*, the extent of any current infestations, and in the absence of the pathogen the likelihood of an infestation occurring in 10 years. In assessing the likelihood of infestation, the models suggest considering location in the landscape, proximity to infested areas, land-use and current management.

The score for the potential to manage the risks focuses on the perceived ability to control human vectoring of the pathogen, through restricting or modifying access and/or the imposition of hygiene

measures Risk mitigation strategies include the use of phosphite and the potential for *ex-situ* conservation.

The scores obtained for 'risk' and 'manageability' for each asset are designated a rating, and together with the conservation status, provide the basis for ranking.

## RESULTS & DISCUSSION

Ratings for taxa, communities and areas undertaken by stakeholders are considered, together with feedback on the models.

The ranked ratings considered in conjunction with the conservation status for species and communities provides the basis for decision making and priority setting in management of natural assets under threat of *P. cinnamomi*. The process will enable resources to be directed where management is most needed and where the chance of success is highest.

The models produce indicative risk assessments based on current scientific knowledge and expert judgement and are viewed as part of an iterative process. The current lack of data requiring 'best guesses' highlights the need for further research on *P. cinnamomi* and its impact in Australia. As our understanding of the factors affecting the pathogen improves, the quantification of risk will be more accurate.

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## REFERENCES

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