**Submission 076**
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**THE IMPACT OF A CHANGING CLIMATES AND PHYTOPHORA DIEBACK ON THE BIODIVERSITY OF THE SOUTH COAST OF WESTERN AUSTRALIA.**

South Coast NRM

## *About South Coast NRM*

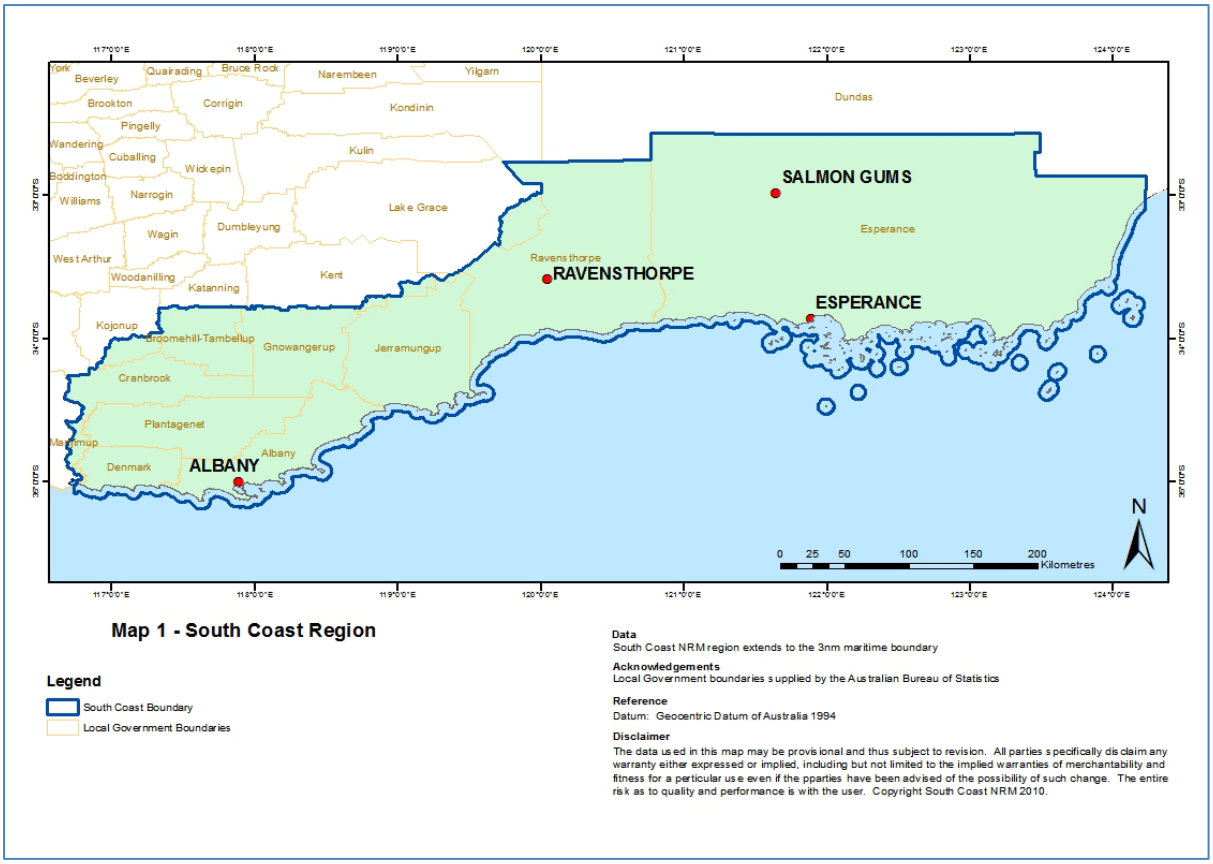
South Coast NRM which is a community based, independent, not-for-profit organisation. We lead partnership arrangements for targeted investment in protecting or improving the condition of natural resources within the South Coast NRM region of Western Australia.

South Coast NRM works with the community to improve the environment by preserving and protecting unique plants and animals, managing land and waterways sustainably and sharing knowledge and skills in natural resource management. The aspirations and goals to deliver upon this are detailed in the recently revised Strategy: *Southern Prospects 2011 - 2016: The South Coast Regional Strategy for Natural Resource Management. Southern Prospects* outlines strategies for the time period between 2011 and 2016 and provides clear guidance for funding and resource allocation.

South Coast NRM benefits from strong community, industry and government support for activities organised under five major themes; Land, Biodiversity, Water, Coastal - Marine and Cultural Heritage. Overarching these themes is the concept of building community capacity so that NRM activities can be successfully undertaken.

South Coast NRM coordinates and administers funding from a variety of sources, including the Australian Government, Government of Western Australia (WA), corporations and businesses. South Coast NRM's own funding is provided through the Southern Fund, established by South Coast NRM in collaboration with the Bendigo and Adelaide Bank, Community Sector Banking and the Community Bank branches of Albany, Mount Barker, Tambellup and Cranbrook to support sustainable environmental, social, cultural and economic outcomes across the region.

The South Coast NRM region of WA (Map 1) covers a land area of more than 8.6 million hectares and extends to the three nautical mile limit which includes approximately one million hectares of State waters. Due to the location of numerous islands, State waters extend up to 70km off shore, especially to the east of Esperance. It includes the catchments of all the southerly-flowing rivers from Walpole in the west to beyond Cape Arid in the east, as well as some internally drained areas north east of Albany and north of Esperance.




**Map 1 - South Coast Region**

**Legend**

South Coast Boundary
Local Government Boundaries

**Data**
South Coast NRM region extends to the 3nm maritime boundary

**Acknowledgements**
Local Government boundaries supplied by the Australian Bureau of Statistics

**Reference**
Datum: Geocentric Datum of Australia 1994

**Disclaimer**
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## ***Response to the Terms of Reference to the Inquiry into Australia's biodiversity in a changing climate***

1. <u>Terrestrial, marine and freshwater biodiversity in Australia and its territories</u>

*Phytophthora cinnamomi* is a plant pathogen spread via a number of vectors including machinery, animals and people. Its preference for poor soils means that it frequently invades areas of high conservation significance, where marginal conditions have given rise to highly specialised and unique plant and wildlife communities (e.g. Stirling Ranges and Fitzgerald River National Parks). Iconic landscapes, such as the UNESCO-listed Fitzgerald River National Park, containing more than 40% of the plant species South West Botanical Province, are under extreme threat from the disease.

In a less predictable and changing climate, phytophthora dieback in addition to frequent fire events are placing the Proteaceae-dominated ecosystems of the south coast of WA under substantial and increasing pressure. A warmer and drying climate as predicted in future climate change scenarios is expected to lead to dramatic decline or extinction of Western Australia's banksias, that are restricted to the 250 mm and above rainfall zone by 2080. In addition, seasonal variation of rainfall events (e.g. less in cooler winter months and more in warmer months) is likely to:

(a) Impact on the germination of banksia seeds which are cued to the winter months; and,
(b) Promote spread of *Phytophthora cinnamomi* by increasing the periods of warm, moist soil conditions in which the organism is most active and at highest risk of spreading.

There are over 1000 known Australian flora species that are known to be susceptible to *Phytophthora cinnamomi* however 95% of native plants remain untested. In addition, 16 of the 24 threatened flora species of the Stirling Range National Park are known to be susceptible to the disease. Even less is known about the impact on wildlife of the disease, however the southern brown bandicoot, Carnaby's Cockatoo and honey possum are included in South Coast species likely to suffer further decline in *P cinnamomi* infested areas. The suite of wildlife species affected is anticipated to be far greater however; as ecological communities lose whole sections of their vegetation, so too does wildlife lose its shelter and food sources within a landscape.

2. Connectivity between ecosystems and across landscapes that may contribute to biodiversity conservation

A study in 2009 by Project Dieback revealed that 1 million hectares of South West Australia's native vegetation was infested and a further 1 million was seriously threatened. Connectivity between ecosystems will continue to be compromised by the combined impacts of *Phytophthora cinnamomi* and frequent fire without substantial management intervention. Both of these impacts are substantially exacerbated by an increasingly unpredictable climate as described above and were identified as the two highest threatening processes in a recent nomination by South Coast NRM of the "Obligate seeding Proteaceae dominated shrub-lands and kwongan of the Esperance Sand-plains" that is currently under assessment (see Point 5, below)

3. How climate change impacts on biodiversity may flow on to affect human communities and the economy

Extreme vulnerability of south west Australia's flora to *Phytophthora cinnamomi* means that widespread infestation will have catastrophic consequences for the region's ecosystems and landscapes and undermine its biodiversity value to the tourism industry. In addition, a wide range of commercially grown species, including pine trees, avocados, chestnuts and citrus trees are also affected by the disease.

4. Strategies to enhance climate change adaptation, including promoting resilience in ecosystems and human communities

Substantial investment is required to address the further spread of Phytophthora dieback, particularly in light of its substantial exacerbation by an increasingly unpredictable climate. In particular, substantial investment in hygiene infrastructure and on-ground management staff in high value ecosystems that remain substantially uninfested is of the utmost priority. In addition, further investment in containing spot infestations to prevent rapid spread to adjacent large tracts of highly susceptible ecosystems is required.

With Phytophthora-free ecosystems now becoming increasingly rare, identification and protection of largely uninfested, high conservation and iconic landscapes from the impacts of *Phytophthora cinnamomi* is now of urgent importance.

5. Mechanisms to promote the sustainable use of natural resources and ecosystem services in a changing climate

The identification and protection of largely uninfested, high conservation and iconic landscapes from the impacts of *Phytophthora cinnamomi*, coupled with the education and engagement of the broader community are the highest priorities for maintaining ecosystem services.

The classification of the *Mallee Heath and Heathlands of the Esperance Sand-plains* and the *Obligate seeding Proteaceae and Kwongan of the Esperance Sand-plains* as a threatened ecological community under the EPBC Act is a further mechanism to prioritise affected ecosystems for future investment. These ecosystems are currently being assessed by the Department of Sustainability, Environment, Water, Population and Community.

6. An assessment of whether current governance arrangements are well placed to deal with the challenges of conserving biodiversity in a changing climate

The cross-regional and multi-organisation approach of Project Dieback over the last six years has seen significant steps forward in the fight against *Phytophthora cinnamomi* in the south western Australia, particularly through increased communication and coordination of activities amongst stakeholders. However, a significant increase in resourcing is required if we are to protect WA's biodiversity and iconic landscapes from the disease's impacts into the future.

7. Mechanisms to enhance community engagement

Impacts of *Phytophthora cinnamomi* are cross-tenure and thus require a multi-organisation approach, with engagement of high risk stakeholders such as LGAs, Main Roads, emergency services and recreational users in addition to WA's peak conservation agency, DEC being essential.