

WHERE IS PHYTOPHTHORA

DIEBACK?

SOUTHWEST
NATURAL
RESOURCE
MANAGEMENT
PROTECTING
VALUED AREAS
FOR THE FUTURE



GETTING A HANDLE ON PHYTOPHTHORA DIEBACK

The Project Dieback team is working to determine where Dieback is, priority areas to be protected and what plants are susceptible in the Southwest Regions of Western Australia.

Project Dieback is a cross regional Natural Resource Management (NRM) project.

Through government funding, the project gives Western Australia capacity to fight one of the state's worst invasive species, *Phytophthora cinnamomi*.

Attention is being focused on forests and bushlands in the Southwest NRM Regions across all land tenures.

The project aims to deliver:

1. **A regional atlas** showing all confirmed *Phytophthora* Dieback infestations.
2. **A list of native plants** which are known to be affected by *Phytophthora* Dieback in the Regions.
3. **Dieback management plans** for Special Value Areas to be protected.



Infestation alert

Phytophthora Dieback is attacking many plant species and affecting ecosystems across all southwest regions. Banksia communities are especially affected.

We need your help...



OUR ICONS ARE UNDER THREAT

Dieback threatens Industries

Forestry, horticultural and tourism industries are impacted by the plant pathogen.

It kills jarrah trees, grape vines, olives, avocados, proteas, bushfoods and wildflowers.

Many previously referred to this disease as "Jarrah Dieback".



Phytophthora Dieback now extends from Eneabba to Esperance

Phytophthora is a genus of water moulds. It is a fungal-like organism that actually belongs to a different kingdom from true fungi altogether: Kingdom Chromista.

There are more than 300 species of *Phytophthora*. One of the most famous and devastating was *Phytophthora infestans* that caused the Irish potato famine.

At least 32 species of *Phytophthora* occur in various parts of Australia. *Phytophthora cinnamomi*, known as *Phytophthora* Dieback has resulted in extensive damage in a variety of habitats and poses Western Australia's greatest threat to biodiversity.

Phytophthora Dieback originated in the tropical climate of Asia. It is likely to have been brought to Australia soon after European settlement when live plants were imported from overseas. Some may have included soil infested with the pathogen. The warm wet conditions of WA's south west and thousands of susceptible plants allow dieback to proliferate.

**DIEBACK
CANNOT YET BE
ERADICATED**

WHAT DOES DIEBACK LOOK LIKE?	ZOOSPORE	CLAMYDOSPORE	MYCELLIUM	SPORANGIA
	<p>Zoospores are short lived spores with two tail-like flagella. They swim fast in water and are attracted to chemicals exuded from certain roots.</p>	<p>Clamydospores are long lived thick-walled resting spores of <i>Phytophthora</i> Dieback surviving when conditions are less favorable.</p>	<p>Mycellium are the vegetative part of dieback consisting of thread-like hyphae that make up the main feeding body in plant tissue.</p>	<p>Sporangia are the structures producing and containing spores in <i>Phytophthora</i>. Spores are released when conditions are right.</p>

HOW YOU CAN HELP

To fight *Phytophthora* Dieback you must first know where it is.

Project Dieback, in partnership with the Department of Conservation and Environment (DEC), aims to produce an up-to-date Dieback atlas for the south-west to meet this requirement.

Skilled DEC *Phytophthora* Dieback interpreters are currently identifying and strategically mapping known infections.

You can help by identifying patches of healthy native vegetation, particularly banksias, that are undisturbed.

These areas will be assessed for neighboring infections, special values and protectability from *Phytophthora* Dieback.

Keeping Clean

Once the surrounding infected areas are known, hygiene management plans can be formulated

to avoid spreading the pathogen into valued healthy areas.

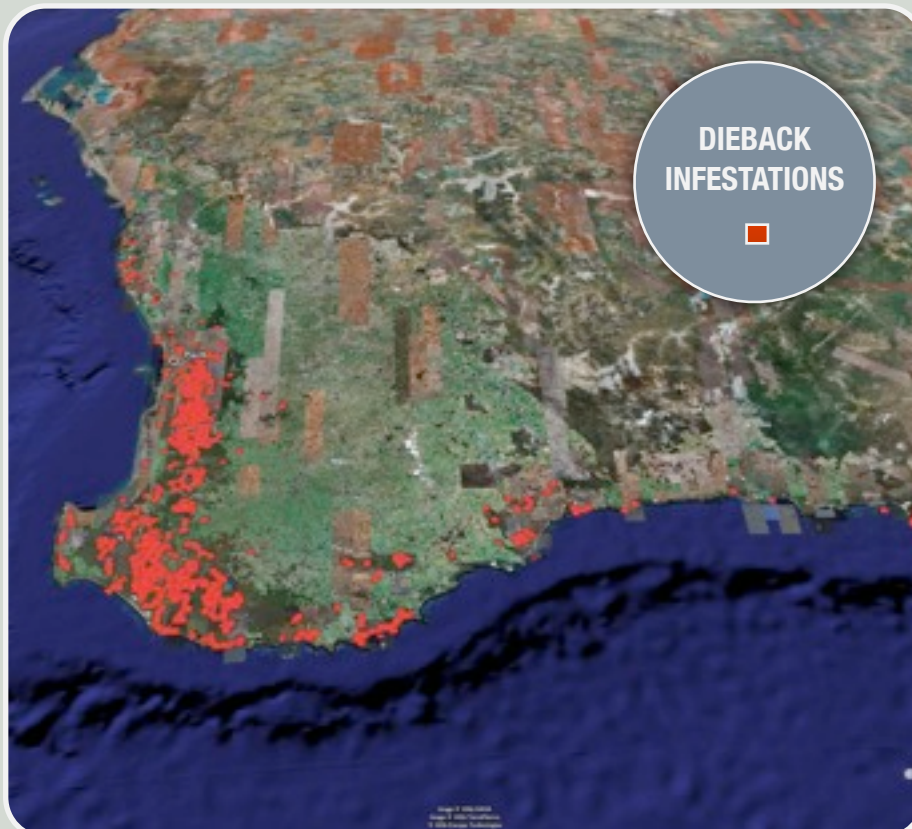
Hygiene practices may include:

- **Cleaning machinery, vehicles and boots before moving from an infected area into dieback free areas.**
- **Not moving gravel, soil or plants from infected areas.**
- **Avoiding dieback free areas at risk in wet or muddy conditions.**

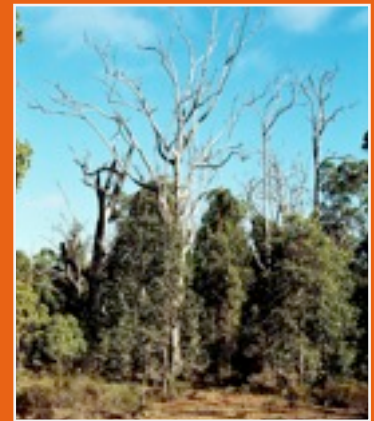
Learning More

To learn more about *Phytophthora* Dieback, please register your interest in attending a **Dieback Workshop**. Contact the Project Officers for Project Dieback (details overleaf).

Your efforts will help industry, government and community to protect some of WA's healthy banksia woodlands, heaths and forests.



KEEP OUT DIEBACK



Southwest WA most at Risk

The southwest of Western Australia is internationally recognised as a Biodiversity Hotspot. With around 5700 native plant species occurring here, it is estimated 2300 species are susceptible to *Phytophthora* Dieback.

PROTECTING THE PROTECTABLE

WA regions are working together to protect our most valued areas from Dieback.

Phytophthora Dieback now occurs across five of the NRM Regions in Western Australia - Northern Agricultural, Swan, Avon, South West and South Coast. With the help of communities, industry, researchers and government, WA have an excellent opportunity to manage and protect special areas threatened by Dieback.

Identifying Susceptible Species

Project Dieback is currently listing species prone to infection in all regions. These species allows managers to quantify and predict the impact of dieback and assist interpreters who use them as indicators to confirm presence of infection.

Mapping the Infestation

Project Dieback has engaged qualified interpreters to map the distribution of infestation. Interpreters use aerial photography, ground observations, sampling of

indicator species and isolations of the pathogen in the laboratory.

Assessing the Risk

After Dieback mapping, a risk analysis is conducted to identify areas with high values protectable in the long term. Project Dieback, in conjunction with the Department of Environment and Conservation, has tools that predict the future spread of *Phytophthora*. Valued assets are digitally overlaid on maps of protectable areas to help prioritise protection zones.

Special Values Areas

Prioritised special value areas are targeted for management and funding ensuring the long term conservation of their biodiversity and environmental assets.

Each Special Value Area will require its own management plan. It may require more detailed



Special Value areas can still be protected

on ground surveys of *Phytophthora* infestation, susceptible species, valued assets, current use and access. Management will include a hygiene plan to ensure all machines and vehicles are clean on entry in to dieback free areas.

Future Vision

With everyone working together, actions today will provide the best opportunity for the protection of our many biological assets in the future.

Hope is on the horizon as our scientific community continues to develop new control and eradication methods against *Phytophthora* Dieback.

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Project Dieback is a cross regional initiative supported and sponsored by the Australian and Western Australian Governments.