



**Report on *Phytophthora* dieback workshops, site visits and general observations made during a week on Kangaroo Island on behalf of Western KI Landcare and Commonwealth NRM Funding**

**May 2013**

## **Introduction**

This brief report details the findings from a series of site visits and workshops throughout the Kangaroo Island community between the 2nd of April and the 7th of April 2013 made by Glenn Tuffnell representing Dieback Treatment Services.

Glenn is accredited through the Department of Environment and Conservation in Western Australia in both the fieldwork and hygiene management practices that will reduce the spread and impact of *Phytophthora* dieback. Glenn, and his company Glenmarri Pty Ltd, are also registered with the Western Australian Health Department as pest controllers allowing us to legally apply phosphite to minimise the impact of *Phytophthora* in infested sites.

Glenn has an extensive knowledge of *Phytophthora* dieback expression throughout all affected areas of the south- west of Western Australia between Eneabba and Esperance and has monitored and mapped disease caused by *Phytophthora* dieback in a variety of landforms and vegetation types on a full time basis since 1991.

Dieback Treatment Services became involved in this project at the request of Lara Tillbrook representing Western KI Landcare Group after the group was successful in attracting a NRM grant to enable the facilitation of *Phytophthora* awareness workshops for the local community which showcased the Western Australian experience of *Phytophthora* management. During this time we also conducted site visits and obtained 17 soil and plant tissue samples from suspect sites across the island and also demonstrated best practise *Phytophthora* dieback treatment using the chemical phosphite. Through these demonstrations we also established monitoring sites to assess the likelihood of phytotoxic effect (leaf burning), on treated *Phytophthora* host plants.

During this time approximately 35 people attended information workshops and treatment demonstrations, five properties were visited and examined for evidence of *Phytophthora* disease, approximately 50 kilometres of roadside was assessed for *Phytophthora* distribution and 1600 litres of Phosphite emulsion was sprayed in two *Phytophthora* infested monitoring sites. To date, no phytotoxic effects have been noted in the monitoring sites and five samples have returned a positive for *Phytophthora* species resulting in the identification of five new infestations.

## **Preamble**

*Phytophthora* dieback disease is caused by the pathogen *Phytophthora cinnamomi* and is a major threat to the biodiversity of south-west Western Australia between Kalbarri in the north and Cape Arid east of Esperance. This introduced water mould kills up to 40% of all native plant species in this area and *Phytophthora* species can exist in areas that receive 400 mm of rainfall per year or more. The spread of this water mould is facilitated by the movement of soil, plant material or water that is infested with spores, particularly under warm, moist conditions. Consequently, a major component of the strategy to constrain this disease involves managing access and soil-disturbance activities within native vegetation. Knowledge of the

occurrence of the disease in the landscape is therefore an essential prerequisite to formulating suitable hygiene management practices. Kangaroo Island has many known *Phytophthora* infested sites throughout the island that have been previously identified through soil and plant tissue sampling, particularly in the wetter western end.

Some of the more common recognisable plants that are killed by *Phytophthora* dieback in Western Australia are as follows; all **Banksia** species (in fact virtually all of the Proteaceous family are susceptible as well as prominent members of the Myrtaceae and, Epacridaceae families), *Eucalyptus marginata* (**jarrah**), *Xanthorrhoea preissii* and *gracilis* (**grasstrees** or **blackboys**), *Persoonia longifolia* and *elliptica* (**snotty gobble**), *Xylomelum occidentale* (**woody pear**) *Allocasuarina* (Sheoak), *Macrozamia riedlei* (**zamia palms**), *Grevilleas*, *Darwinias*, *Isopogen* and *Petrophile*....the list goes on in fact some 2400 plant species are killed by *Phytophthora* in the south west of Western Australia. Although the vegetation on Kangaroo Island is not as diverse as that found in the south west of Western Australia many susceptible species such as *Xanthorrhoea*, *Allocasuarina*, *Banksia*, *Isopogen* and *Petrophile* and many others in the *Epacridaceae*, *Fabaceae* and *Proteaceae* family's which are known to be susceptible to *Phytophthora* are widespread and common through out the island. One particular concern is the plight of the Glossy Black Cockatoo and their reliance on *Allocasuarina* as a food source which would also appear to be susceptible to *Phytophthora cinnamomi*. Further investigation is required to determine the extent of infested areas and populations of this critical food source that may be at risk of infestation on the island.

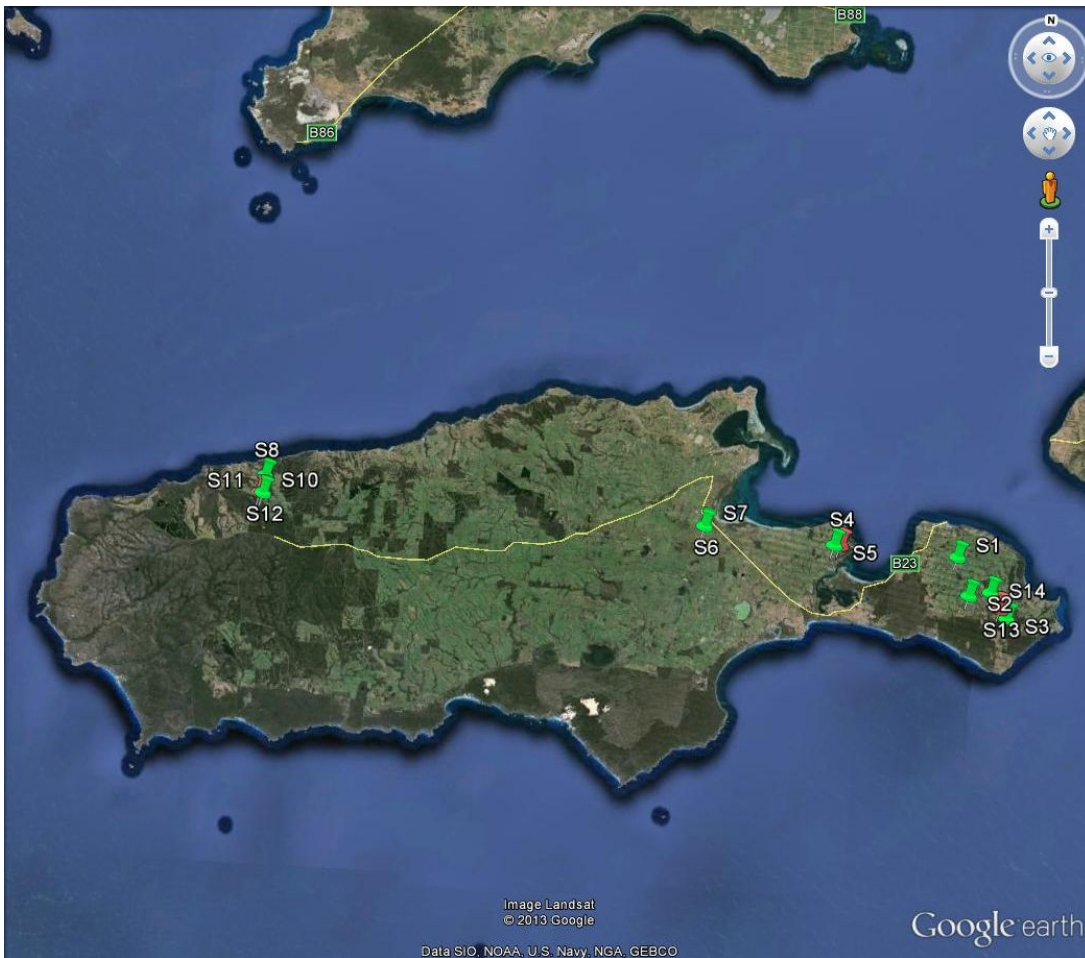
## **Recommendations**

In the interest of minimising disease spread and reducing existing impact we make the following recommendations for the island community.

1. Hygiene across the Island seems lacking therefore the installation of permanent wash down facilities (Pad, sump, grate and treated water source with instructional signage possibly coin operated) for use by Govt. and public located at Cape Jervis, Penneshaw, Kingscote, Parndana and maybe three strategically placed around the Chase National Park . This action could be combined with a clean down on entry policy for all vehicles that cross over from the mainland. Ensuring all vehicles and equipment are free of soil, slurry and plant material before driving onto the ferry will minimise the potential for new diseases and weeds to be introduced onto the island as well as a simple *Phytophthora* hygiene control measure.
2. Strategic *Phytophthora* mapping across all govt. managed reserves and National Parks. This can be broken into two stages. Stage one will determine areas that are interpretable and stage two will map these interpretable areas potentially utilising aerial photography and ground truthing rather than on ground intensive mapping. This action will give managers a useful snapshot of disease extent that will then require more intensive, accurate mapping (inclusive of field demarcation), prior to specific soil moving operations.

3. More Community awareness through public presentations, media campaigns and tapping into the rich artistic community across the island with a particular focus on the plight of the Glossy Cockatoo. A school based education campaign targeting students and staff in the three schools will be critical to the long term success *Phytophthora* management across the island. Consider developing a KI specific DVD for use on the Ferry Services and in the schools.
4. The creation of a biodiversity fund for managers of remnant vegetation on private property that will support site visits, testing and mapping, the creation of management plans and potentially treatment with Phosphite.
5. The establishment of phosphite trial plots across the island for long term study of rates of spread of *Phytophthora* in infested sites and effectiveness of phosphite application programs in the Kangaroo Island plant communities.
6. The potential establishment of an Island based sampling processing facility that utilises PCR techniques as well as standard baiting. This is particularly important in identifying infested sites in the dryer eastern end of the island.
7. Consider the acquisition of an island based spray unit for community use.

### Sample Results to date



Sample	GPS etc	Plant	Date	Result
1	Wilson River Rd 53H 767205 6036561	S1 Xs, As	2 April	<i>Pythium</i> sp.
2	Wilson River rd 53H 768987 6031184	S2 Xs	2 April	
3	Cape hart Rd 54H 232568 6028400	S3 Bo	2 April	
4	American River 53H 750656 6037782	S4 Xs	3 April	<i>Pythium</i> sp. <b>Pc.</b>
5	American River 53H 749788 6037671	S5 Xs	3 April	<i>Pythium</i> sp.
6	Wirilili 53H 0731451 6039726	S6 Xs	4 April	<i>Pythium</i> sp.
7	Wirilili 53H 0731503 6039920	S7 Xs	4 April	<i>Pythium</i> sp.
8	Lara 53H 0669585 6044795	S8 Bo	5 April	
9	Lara 53H 0669584 6044829	S9 Xs	5 April	<i>Phytophthora</i> sp.
10	Stupar 53H 0669352 6042415	S10 Xs	6 April	<b>Pc.</b>
11	Stupar 53H 0668931 6042372	S11 Xs, Bo	6 April	<b>Pc.</b>
12	Stupar 53H 0669321 6042326	S12 Bo	6 April	<i>Pythium</i> sp.
13	Cape Hart Rd sample 1 54H 0231527 6029660	S13 Bo	7 April	<i>Pythium</i> sp., <i>Phytophthora</i> sp.
14	Moffat S1 54H 0229993	S14 Xs	7 April	<i>Pythium</i> sp.

Xs = *Xanthorrhoea semiplana*

As = *Allocasuarina* sp.

Bo = *Banksia ornate*

Pc = *Phytophthora cinnamomi* identified by mycelial characteristics

## **Conclusion**

Please feel free to contact us or Western KI Landcare if you have any questions in relation to this report or require assistance to implement any of the above recommendations.

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