

LEGEND

- Swan Valley Bypass
- Tonkin Highway Upgrade
- DPaW managed lands
- Watercourse

Dieback Occurrence Category

- Excluded
- Infested
- Uninfested
- Uninterpretable

Dieback Sample Results

- P. cinnamomi*
- Negative
- P. cinnamomi* (Historical)

NORTHLINK - SWAN VALLEY BYPASS PROJECT

Linear Phytophthora Dieback Survey

Coordinate System: GDA 1994 MGA Zone 50
Projection: Transverse Mercator, Datum: GDA 1994, Units: Meter

Scale @ A3: 1:12,500	Figure 12
Date: 19/11/2014	
Revision: Rev B	
Project No: TW14001	
Prepared: B Jones	
Checked: J Botterill	
Reviewed: N King	

Document Path: \\server\\Talis\\SECT\\FONDS\\Spatial\\PROJECTS\\2014\\T140013 - Terratree Northlink Mapping\\Map\\T14013_003_SVB_Segmented_Dieback_L.com



LEGEND

Swan Valley Bypass

Tonkin Highway Upgrade

DPaW managed lands

Watercourse

Dieback Occurrence Category

Excluded

Infested

Uninterpretable

Dieback Sample Results

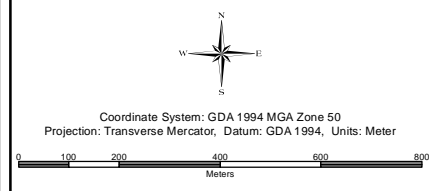
P. cinnamomi

Negative



NORTHLINK - SWAN VALLEY BYPASS PROJECT

Linear Phytophthora Dieback Survey



Scale @ A3: 1:15,000	Figure 13
Date: 19/11/2014	
Revision: Rev B	
Project No: TW14001	
Prepared: B Jones	
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Reviewed: N King	

Plates



Plate 1: Infested area being masked by resistant sedges



Plate 2: Uninterpretable vegetation dominated by resistant species *Melaleuca raphiophylla*



Plate 3: Canker lesion above the root collar on a *Banksia attenuata*



Plate 4: Infested water-gaining site at Ellenbrook with dead *Xanthorrhoea preissii* displaying disease pattern and chronology.



Plate 5: Rubbish dumping at Ellenbrook due to unrestricted vehicular access



Plate 6: Infested area within Rocla's mining lease area with obvious disease symptoms, pattern and chronology.



Plate 7: Infested area in Cullacabardee Nature Reserve with obvious disease symptoms, pattern and chronology.



Plate 8: Infested *Xanthorrhoea preissii* population in Whiteman Park.



Plate 9: Uninfested area in Cullacabardee Nature Reserve with multiple healthy disease indicator species and no disease symptoms.



Plate 10: Example of Excluded (unmappable) near the intersection of Reid and Tonkin Highways.



Plate 11: Epicormic growth on *Banksia attenuata* indicates recovery from drought



Plate 12: Drought symptoms in otherwise healthy vegetation

Appendices

Appendix 1: Vegetation Health Services Laboratory report on positive identification of *Lasiodiplodia* sp. (Canker)

Appendix 2: Sample Results from the Vegetation Health Services laboratory

PLANT DISEASE SAMPLE INFORMATION SHEET

CLIENT NAME Terratree. Joe Grehan joeg@terratree.com.au

SAMPLE *Banksia attenuata* canker NLS 06 (canker).

DIAGNOSIS A *Lasiodiplodia* sp. (Fig 1 & 2) was isolated almost in pure culture and most likely indicates some inability of the plant to contain the fungi which can also be present on healthy plants.

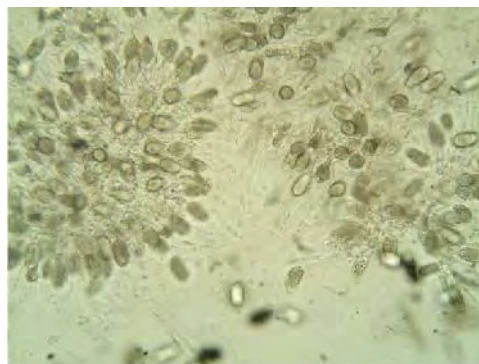


Fig. 1 Young conidia and conidiophores



Fig. 2 Mature conidia with melanisation and weak striations

THE PATHOGEN *Lasiodiplodia* sp along with other genera in the Botryosphaerales, are commonly isolated from stem and twig cankers of *Eucalyptus*, *Hakea* and *Banksia* sp. of south-western Australia (Shearer 1994) Sometimes parasitic they often exist as benign endophytes (present in host tissues asymptotically) causing disease only when the host is compromised in some way. Trees affected by drought, insect attack, defoliation by fungi, sunscald, herbicides or mechanical injury are predisposed to infection and disease development.

SYMPTOMS Twig and branch death.

HOST RANGE Myrtaceae, Proteaceae and Epacridaceae.

DISTRIBUTION Ubiquitous across the south-west but can have local high inoculum levels in infection pockets.

CONTROL Really need to trial this first to look at host/pathogen/fungicide response. Unsure? Is it warranted?

LABORATORY SAMPLES CC1720 not retained

SITE Northern Linkage?

MAP REFERENCE E 403745 N 6487608 Zone 50?

19/9/2014

Colin Crane

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Department of Parks and Wildlife

Science Division

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Shearer BL (1994) The major plant pathogens occurring in native ecosystems of south-western Australia, Journal of the Royal Society of Western Australia **77**, 113-122.

SEND TO: Vegetation Health Service, Science Division – D.E.C, 17 Dick Perry Ave KENSINGTON 6152 Phone: (08) 9334 0317 Fax: (08) 9334 0114

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 Recoup (R) Other _____
 Private (P)

VHS USE ONLY

Date processed 23/8/14
 received 23/8/14
 Date faxed 5/9/14

VHS Identification Number (VHS USE ONLY)	Sample Date	Sample label (Forest block, Sample number etc.)	Plant species sampled	Site Impact (1)	GDA (2)	Map Reference (3)	Land Tenure (4)	Result s/s root (5)	Result bait
 VHS31247	5/8/14	NLS01	<i>Banksia attenuata</i>	High	✓	E 400799 N 6484596	SF		CIN
 VHS31248	5/8/14	NLS02	<i>Banksia ilicifolia</i>	High	✓	E 399603 N 6482900	R		NEG
						E --- N ---			
						E --- N ---			
						E --- N ---			
						E --- N ---			
						E --- N ---			
						E --- N ---			

NOTES:

1. Site impact - Low, Moderate, High or Very High (as in the Dieback Interpreter's Manual).
2. Please tick this column if your map references are supplied in the new GDA standard.
3. An AMG map reference with prefixes **must** be supplied for all samples.
4. Land Tenure - State Forest (SF), National Park (NP), Reserve (R), Westrail (W), Private (P), Gravel Pit (GP), or other. (other - describe in comments below).
5. Result codes used - CIN= *Phytophthora cinnamomi*, CIT= *P.citricola*, CRY= *P.cryptogea*, PI= *P.inundata*, PM= *P.megasperma*, PN= *P.nicotianae*, NEG = negative, SUB = subcultured.

COMMENTS:

VEGETATION HEALTH SERVICE - PHYTOPHTHORA SAMPLE INFORMATION SHEET

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VHS USE ONLY

Date processed 23/8/14
 received 23/8/14
 Date faxed 5/9/14

VHS Identification Number (VHS USE ONLY)	Sample Date	Sample label (Forest block, Sample number etc.)	Plant species sampled	Site Impact (1)	GDA (2)	Map Reference (3)	Land Tenure (4)	Result s/s root (5)	Result bait
 VHS31249	9/8/14	NLS03	<i>Banksia grandis</i> H	✓	✓	E 404845 N 6507571	Preserve		NEG
 VHS31250	9/8/14	NLS04	<i>Banksia menziesii</i> M	✓	✓	E 403463 N 6488149	Private		CIN
 VHS31251	20/8/14	NLS05	<i>Banksia attenuata</i> M	✓	✓	E 403463 N 6487606	RR		NEG
 VHS31252	20/8/14	NLS06 (canker)	<i>B. attenuata</i> M	✓	✓	E 403745 N 6487608	RR		STILL TO COME
 VHS31253	20/8/14	NLS07	<i>B. attenuata</i> M	✓	✓	E 403415 N 6487327	RR		NEG
 VHS31254	20/8/14	NLS08	<i>B. attenuata</i> M	✓	✓	E 403428 N 6487171	RR		NEG
 VHS31255	20/8/14	NLS09	<i>B. ilicifolia</i> M	✓	✓	E 403303 N 6486895	RR		NEG
 VHS31256	20/8/14	NLS10	<i>B. ilicifolia</i> M	✓	✓	E 403329 N 6486759	RR		NEG

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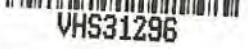
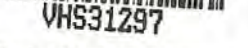
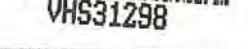
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GDA
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 GDA 94 ☒

Job Type (Please indicate)
 D.E.C. (C) Alcoa (A)
 Recoup (R) FPC
 Private (P) Other _____

VHS USE ONLY
 Date processed 6/9/14
 Date received _____
 Date faxed 18/9/14

VHS Identification Number (VHS USE ONLY)	Sample Date	Sample label (Give location, eg. Forest Block or Shire, etc. and sample number)	Plant species sampled	Site Impact (2)	Zone 50 or 51	Map Reference (3)	Land Tenure (4)	RESULT s/s root (5)	RESULT bait (5)
 VHS31291	1/9/14	NLS11	<i>Banksia attenuata</i>	M	50	E 403268 N 6486599	P		4D NEG
 VHS31292	1/9/14	NLS12	<i>B. menziesii</i>	M	50	E 403442 N 6482076	P		4D NEG
 VHS31293	1/9/14	NLS13	<i>B. attenuata</i>	M	50	E 403234 N 6486262	P		4D NEG
 VHS31294	1/9/14	NLS14	<i>B. attenuata</i>	M	50	E 402230 N 648561	P		NEG
 VHS31295	1/9/14	NLS15	<i>B. attenuata</i>	M	50	E 402356 N 6485482	P		NEG
 VHS31296	1/9/14	NLS16	<i>B. attenuata</i>	M	50	E 402039 N 6485343	P		4D NEG
 VHS31297	1/9/14	NLS17	<i>B. illinoensis</i>	L	50	E 401931 N 6485377	P		NEG
 VHS31298	1/9/14	NLS18	<i>B. attenuata</i>	M	50	E 402329 N 6485559	P		4D NEG

NOTES:

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Please Note: a). NEG results cannot be used to represent a total absence of *Phytophthora* in the sampled area. b). Information from your samples will be incorporated into the VHS database.

COMMENTS:

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VHS USE ONLY

Date processed
 received 12/9/15
 Date
 faxed 24/9/15

VHS Identification Number (VHS USE ONLY)	Sample Date	Sample label (Forest block, Sample number etc.)	Plant species sampled	Site Impact (1)	GDA (2)	Map Reference (3)	Land Tenure (4)	Result s/s root (5)	Result bait
 VHS31330	7/9/14	NLS 21 19	Banksia menziesii	H	✓	E 3972209 N 6479515	R		CIN
 VHS31331	7/9/14	NLS 21 20	Banksia ilicifolia	H	✓	E 397523 N 6478522	R		NEG
 VHS31332	7/9/14	NLS 23 21	Banksia attenuata	H	✓	E 397376 N 6478222	R		NEG
						E ----- N -----			
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						E ----- N -----			
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 Private (P) Other _____

VHS USE ONLY
 Date processed 19/9/14
 Date received 1/10/14

VHS Identification Number (VHS USE ONLY)	Sample Date	Sample label (Give location, eg. Forest Block or Shire, etc. and sample number)	Plant species sampled	Site Impact (2)	Zone 50 or 51	Map Reference (3)	Land Tenure (4)	RESULT s/s root (5)	RESULT bait (5)
 VHS31378	7/9/14	NLS 22	<i>Banksia menziesii</i>	H	50	E 397166 N 6480200	SF		CIN
 VHS31379	19/9/14	NLS 23	<i>B. menziesii</i>	H	50	E 396969 N 6480407	SF		NEG
						E - - - - - N - - - - -			
						E - - - - - N - - - - -			
						E - - - - - N - - - - -			
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 DEC Office or Company Name Terratree Pty Ltd

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 GDA 94 ☒

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 Recoup (R) FPC
 Private (P) Other _____

VHS USE ONLY

Date 21/11/14
 received
 Date faxed 21.10.14

VHS Identification Number (VHS USE ONLY)	Sample Date	Sample label (Give location, eg. Forest Block or Shire, etc. and sample number)	Plant species sampled	Site Impact (2)	Zone 50 or 51	Map Reference (3)	Land Tenure (4)	RESULT s/s root (5)	RESULT bait (5)
VHS31745 	4/11/14	NLS 24	<i>Banksia menziesii</i>	M	50	E 405118 N 6507024	P		NEG
VHS31746 	4/11/14	NLS 25	<i>B. menziesii</i>	M	50	E 402968 N 6485904	P		NEG
VHS31747 	4/11/14	NLS 26	<i>B. attenuata</i>	H	50	E 403001 N 6485955	P		NEG
VHS31748 	4/11/14	NLS 27	<i>X. preissii</i>	H	50	E 397572 N 6477399	P		NEG
						E ----- N -----			
						E ----- N -----			
						E ----- N -----			
						E ----- N -----			

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