



Department of
Environment and Conservation

Our environment, our future



Dieback Interpretation Report
Swan, South West and Warren Regions
FORESTCHECK Sites

FOREST MANAGEMENT BRANCH

Department of Environment and Conservation

Release 1.00

February 2010

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Dieback interpretation report :
Swan, South West and Warren
Region : FORESTCHECK sites

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Revision: 0.01

Acceptance and Release Notice

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Release Status:

Release Number	Date	Reason for Release
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1 Introduction

1.1 Background

FORESTCHECK plots have been established to monitor a variety of forest activities that impact on biodiversity. Initially the focus for FORESTCHECK plots is on timber harvesting and silvicultural treatments in the jarrah forest, however the intention is to extend the scale of monitoring over time to include the impact of fire, mining, various clearing (roads and power transmission lines), and recreation uses on jarrah and other forest ecosystems.

FORESTCHECK is designed to provide information on fauna, flora and other organisms and to record, interpret and report on the status of the forest communities and processes in order to understand impacts of both forest management activities and natural variations that occur. Plots were established in recently harvested forest within specific vegetation complexes. Each plot has a corresponding control plot that is either unharvested or has not been harvested since 1960. This interpretation was carried out to determine their current disease status.

Forest Management Branch (FMB) within the Department of Environment and Conservation (DEC) has been engaged by the Science Division of DEC to map the occurrence of *Phytophthora cinnamomi* (P.c.) at all FORESTCHECK sites located throughout the three forest regions.

This report details the process and results of mapping *Phytophthora cinnamomi* in the FORESTCHECK sites and establishes *Phytophthora cinnamomi* presence or absence.

1.2 Location and size of areas

Interpretation of the presence of *Phytophthora cinnamomi* was undertaken for all 48 FORESTCHECK plots across the three forest regions.

All FORESTCHECK plots are located within 200 metres of an easily accessible bush track. The plots are 2 hectares in size and extend 50 metres either side of the centre point towards the long sides of the rectangle and 100 metres either side of the centre to the short sides of the rectangle.

The plots contain different coloured tags on pegs, defining a grid for monitoring a range of values. The yellow tags mark the perimeter of the plot at six points of the rectangle, the four corners and two middle points. The centre point is located between the two middle pegs. The number and location of the pegs are indicated in Figure 1.

A spreadsheet showing the coordinates of FORESTCHECK plot locations is included as Appendix 1.

2 Methods

2.1 Historical land use and past disturbance

FORESTCHECK plots were established to monitor effects of harvesting compared to similar sites which are either unharvested or have not been harvested for over forty years. Table 1 below indicates the last harvest decade for each of the plots with *P.c.* present.

Location	Plot #	Last harvest (decade)
Thornton	FC 7	1940 - 49
Easter	FC 10	Virgin
Surface	FC 15	1990 - 99
Holyoake	FC 21	1990 - 99
St John	FC 39	1930 - 39
Layman	FC 40	Virgin

Table 1: Harvesting history of plots that are partially or completely infested

2.2 Interpretation

Field interpretation commenced and finished during the month of September 2006 and followed the standard methods and operating procedures described in the document titled "Volume 2 - *Phytophthora cinnamomi* and disease caused by it: Interpreter guidelines for detection, diagnosis and mapping" (CALM 2001). Several plots that were uninterpretable at the time as a result of a reduction in visible indicator species from recent fire activity were re-interpreted in January 2010.

Each plot was interpreted using the stripline survey method. This involved walking through the area using transects positioned 50 metres apart to identify the presence of disease caused by *Phytophthora cinnamomi*. This involved three striplines of 200 metres in length to cover the 2 hectares.

The presence or absence of the disease was determined through observation and using previous interpretation via permanent demarcation in the field. Sampling of soil and plant tissue was undertaken when required.

Non-differential hand-held global positioning system (GPS) receivers were used for navigation and to record survey boundaries and waypoints within the areas. Waypoints were recorded to indicate *Phytophthora cinnamomi* related deaths or points in uninfested areas.

Three categories covered all of the plots:

1. Uninfested – no plant disease symptoms were observed that were consistent with the presence of *Phytophthora cinnamomi*.
2. Infested – symptoms of the disease were associated with the deaths of one or more indicator species.
3. Uninterpretable – a lack of or absence of indicator species.

2.3 Demarcation

The boundary between the 'infested' and 'uninfested' location in the field was demarcated using wide "Day-glo" orange coloured flagging tape and recorded using GPS receivers. The end of a demarcation line was indicated by tying the tape twice, at different heights, around a tree. Along the demarcation line tapes were tied once around trees at a visible height with the knots facing the infested area. As requested by Science Division, no buffer was applied to the infested area. This differs from the standard procedure of demarcating with a buffer from the last visible symptoms or plant deaths.

2.4 Soil and plant sampling

In the Swan and South West Regions no samples were taken in any of the plots. All the plots were interpreted using field observations as this was sufficient to establish the presence or absence of Pc.

In Warren Region 12 samples were taken in five plots where there were recent indicator deaths. Only four samples returned positive results for *P.c.*

3 Results

3.1 Disease distribution

FC 7 is partially infested. The infested area is in the north west corner of the plot and is likely to be associated with an old snig track that runs through the centre plot.

FC 10 is completely infested. The plot is downslope from a known infested track (Dickson Road).

FC 15 is completely infested. It lies within close proximity to an old harvesting landing that is known to be infected. Although upslope from the landing, the disease has autonomously spread into the plot.

FC 21 is partially infested. The infested area is located within the north west corner of the plot. The infestation appears to have originated from a nearby track.

FC 39 is partially infested. The infested area is likely to be linked to an unnamed track in the west and a swamp area in the northern section of the plot. This interpretation found the infestation had not spread significantly from the previous interpretation.

FC 40 is completely infested. An open track located 50 metres upslope from the plot appears to be the likely cause of infestation.

The Occurrence Maps for these infested sites are attached.

The infested category of the plots mapped and their sizes are indicated in Table 2.

Sites greater than 2 hectares have been interpreted outside the plots perimeter to understand the occurrence of *Phytophthora cinnamomi*.

FC Plots	Block Name	Uninfested (ha)	Infested (ha)
FC 7	Thornton	1.9	0.5
FC 10	Easter	0.0	2.0
FC 15	Surface	0.0	2.0
FC 21	Holyoake	1.3	0.7
FC 39	St John	2.5	0.4
FC 40	Layman	0.0	2.0

Table 2: Plots with *P.c.* presence and corresponding area statements

3.2 Disease expression and impact

Plot 7 Thornton

Going by the expression and impact of the disease on the adjacent forest to the west, this infestation is expected to have a moderately high impact on much of the susceptible flora within this plot in the future.

Expression in this plot was good; indicators expressing disease were *Banksia grandis*, *Persoonia longifolia*, *Xanthorrhoea preissii*, *Xanthorrhoea gracillis* and other smaller indicators.

Plot 10 Easter

The infestation appears reasonably old and is expressing a moderate impact. It appears to have already removed approximately 90% of the *Banksias* and *Persoonias* and approximately 50% of the *Patersonia* spp. In addition there appears to be a reasonable number of the *Podocarpus drouynianus*, *Macrozamia reidlei*, *Leucopogon verticillatus* and *Leucopogon capitellatus* species dying, along with at least one *Xanthorrhoea preissii*. The visible impact is not as apparent as it may otherwise be, owing to the density of *Bossiaea aquafolium* in much of the plot.

Plot 15 Surface

The expression within this plot was reasonable with indicator species deaths of *X. gracilis*, *X. priessii* and *Leucopogon capitellatus*. The predicted impact within the plot is expected to be high, given the shallow gravel soils and low soil fertility.

Plot 21 Holyoake

Disease expression was good despite the area having been burnt as recently as two years prior to interpretation. There were old and recent deaths with good chronology throughout the infested area. The predicted impact for this plot is expected to be high with more than 10% of the overstorey already dead, as well as a significant reduction in the midstorey, understorey and biomass.

Plot 39 St John

There are some recent indicator species deaths on the disease front such as *Banksia grandis*, *X. preissii* and *X. gracilis*, with the expression being reasonable. The predicted impact at this site is expected to be high with shallow and infertile soils.

Plot 40 Layman

The predicted impact for this plot is expected to be high impact with more than 10% of the overstorey already dead, as well as a reduction in the midstorey, understorey and biomass.

3.3 Uninterpretable

Plot 14 Surface

This plot is uninterpretable as there are minimal indicators within the plot and there is a heavy midstorey of jarrah/marri regeneration and *Bossiaea aquafolium* present. This plot was previously interpreted in 2006 as infested, however when revisited in 2010 there were no signs of *Phytophthora cinnamomi* being present. A more intensive plant tissue and soil sampling program could be undertaken to confirm the presence of the disease and assist in mapping its extent, if required.

Plot 36 Bell

This plot is uninterpretable as there is a lack of indicator species present and a thick midstorey of jarrah and marri regeneration. A soil sampling program could be undertaken to confirm the presence of the disease and assist in mapping its extent, if required.

4 Conclusion

An area in excess of 96 hectares of jarrah forest was interpreted for the presence or absence of *Phytophthora cinnamomi* in 48 FORESTCHECK plots. All sites interpreted are in the Swan, South West and Warren Regions.

The partially or completely infested area throughout six FORESTCHECK plots equates to 7.6 hectares in total. FORESTCHECK plots 7, 10, 15, 21, 39 and 40 have *Phytophthora cinnamomi* present within the plot boundaries. The infestations have occurred from infested creeks or gullies and open or reconstructed tracks.

It is recommended that Holyoake site 21 be investigated on a regular basis for disease spread as there seems to be a significant autonomous spread of *P.c.* upslope.

Forty of the 48 FORESTCHECK plots interpreted are uninfested as there is an abundance of healthy indicators present and no symptoms of *P.c.* at any of these plots.

A table of all the FORESTCHECK plots can be found in Appendix 1 with all the information in regards to plot number and block, reserve status, decade of last harvest, Silrec year, objective, previous recorded dieback status, observed dieback status 2006/2007, observed dieback status 2010 and comments.

5 References

- Botanic Gardens Trust Sydney NSW. Armillaria Root Rot – fact sheet.
http://www.rbgsyd.gov.au/information_about_plants/pests_diseases/fact_sheets/armillaria_root_rot
- Department of Conservation and Land Management (2000) *Phytophthora cinnamomi* and disease caused by it. Volume I Management Guidelines
- Department of Conservation and Land Management (2001) *Phytophthora cinnamomi* and disease caused by it. Volume II Interpreter guidelines for detection, diagnosis and mapping
- Havel, J.J. (1975) Site Vegetation Mapping in the Northern Jarrah Forest (Darling Range).
2. Location and Mapping of Site-Vegetation Types

6 Appendix

Appendix 1: FORESTCHECK plot sites

Plot number - Block	Reserve status	Decade of last harvest	Silrec year	MGA coordinates East	MGA coordinates North	Objective	Historical Records - Dieback Status	Observed Dieback Status 2006/2007	Observed Dieback Status 2010	Comments
Plot 01 - Winnejuip	<i>Greater Kingston NP</i>	1940 - 49	<i>No record</i>	437927	6229204	<i>No record</i>	<i>No record</i>	Dieback-free		
Plot 02 - Kingston	Available forest	1990 - 99	1996	440818	6228295	Gap	Dieback-free	Dieback-free		
Plot 03 - Kingston	FHZ	1990 - 99	1995	441707	6227773	Shelterwood	Dieback-free	Dieback-free		
Plot 04 - Kingston	Available forest	1970 - 79	1996	440818	6227900	TEAS	Dieback-free	Dieback-free		
Plot 05 - Yornup	Available forest	1940 - 49		420894	6225825	Not cut but available	Dieback-free	Dieback-free		
Plot 06 - Thornton	Available forest	1990 - 99	1991	413292	6224088	Gap	Dieback-free	Dieback-free		Scattered Armillaria
Plot 07 - Thornton	Available forest	1940 - 49	1991	413056	6224168	TEAS	Dieback-free	Mostly Dieback-free with some Dieback present		
Plot 08 - Carter	Available forest	1990 - 99	1998	410310	6227325	Gap	Dieback-free	Dieback-free		Armillaria
Plot 09 - Carter	Available forest	1940 - 49	1998	410539	6227160	Uneconomic	Dieback-free	Dieback-free		Scattered Armillaria
Plot 10 - Easter	<i>Easter NP</i>	Virgin		388976	6213699	Not cut but available	Dieback-free	Dieback present		
Plot 11 - Edward	Available forest	1990 - 99	1994	422654	6327469	Gap	Dieback-free	Dieback-free		
Plot 12 - Ross	Available forest	1990 - 99	1992	428240	6335025	Gap	Dieback/dieback-free?	Uninterpretable - BURNT - but should be Dieback-free	Dieback-free	
Plot 13 - Ross	Available forest	1990 - 99	1992	428796	6334611	Shelterwood	Dieback-free	Uninterpretable - BURNT - but should be Dieback-free	Dieback-free	
Plot 14 - Surface	Available forest	1990 - 99	1997	428854	6332318	Gap	Dieback-free	Dieback present	Uninterpretable	
Plot 15 - Surface	Available forest	1990 - 99	1997	429147	6331836	Shelterwood	Dieback-free	Dieback present	Dieback present	
Plot 16 - Yourdamung	<i>Lane-Poole NP</i>	Virgin	<i>No record</i>	427620	6323349	<i>No record</i>	Dieback-free	Uninterpretable - BURNT - but should be Dieback-free	Dieback-free	
Plot 17 - Surface	<i>Lane-Poole NP</i>	Virgin	<i>No record</i>	431154	6334857	<i>No record</i>	Dieback-free	Dieback-free		
Plot 18 - Chalk	Informal reserve	1990 - 99	1993	426852	6342351	Gap/shelterwood?	Dieback/dieback-free?	Dieback-free		
Plot 19 - Tumlo	Informal reserve	Virgin	1996	426304	6346507	Not cut but available	Dieback-free	Dieback-free		
Plot 20 - Holyoake	Available forest	1990 - 99	1995	416633	6381141	Shelterwood	Dieback-free	Dieback-free		
Plot 21 - Holyoake	Available forest	<1920	1996	416826	6379460	Not cut but available	Dieback-free	Mostly Dieback-free with some Dieback present		

Plot number - Block	Reserve status	Decade of last harvest	Silrec year	MGA coordinates East	MGA coordinates North	Objective	Historical Records - Dieback Status	Observed Dieback Status 2006/2007	Observed Dieback Status 2010	Comments
Plot 22 - Kennedy	Available forest	1980 - 89	<i>No record</i>	427799	6386450	<i>No record</i>	Dieback-free	Dieback-free		
Plot 23 - Cameron	Available forest	1980 - 89	<i>No record</i>	428271	6390154	<i>No record</i>	Dieback-free	Dieback-free		
Plot 24 - Kennedy	Available forest	1920 - 29	<i>No record</i>	432424	6384848	<i>No record</i>	<i>No record</i>	Dieback-free		
Plot 25 - Lesley	Available forest	1990 - 99	1997	429737	6439510	Shelterwood	Dieback-free	Dieback-free		
Plot 26 - Lesley	Available forest	1990 - 99	1997	426516	6442434	Shelterwood	Dieback-free	Dieback-free		
Plot 27 - Occidental	Available forest	1930 - 39	1997	427841	6446557	Not cut but available	Dieback-free	Dieback-free		
Plot 28 - Nalyerin	<i>Lane-Poole NP</i>	Virgin	<i>No record</i>	443058	6325915	<i>No record</i>	<i>No record</i>	Dieback-free		
Plot 29 - Godfrey	Available forest	1940 - 49	2001	447641	6318334	TEAS	Dieback-free	Dieback-free		
Plot 30 - Godfrey	Available forest	2000 - 04	2000	446321	6318928	Gap/shelterwood?	Dieback-free	Dieback-free		
Plot 31 - Godfrey	Available forest	2000 - 04	2001	446999	6317400	Gap/shelterwood?	Dieback-free	Dieback-free		
Plot 32 - Stockyard	<i>Lane-Poole NP</i>	1950 - 59	1996	445466	6333135	Not cut but available	<i>No record</i>	Dieback-free		
Plot 33 - Stockyard	<i>Lane-Poole NP</i>	1990 - 99	1998	446732	6333999	Shelterwood	Dieback-free	Dieback-free		
Plot 34 - Stockyard	<i>Lane-Poole NP</i>	1990 - 99	1998	446730	6333139	Mixed	Dieback-free	Dieback-free		
Plot 35 - Bell	<i>Lane-Poole CP</i>	Virgin	1996	440165	6349177	Not cut but available	<i>No record</i>	Uninterpretable - BURNT - but should be Dieback-free	Dieback-free	
Plot 36 - Bell	Available forest	1990 - 99	1996	439752	6348737	Shelterwood	Dieback-free	Uninterpretable - BURNT - but should be Dieback-free	Uninterpretable	
Plot 37 - Bell	Available forest	1990 - 99	1996	440097	6348816	Gap	Dieback-free	Uninterpretable - BURNT - but should be Dieback-free	Dieback-free	
Plot 38 - Other Crown Reserve	Other public land	No record of harvest	<i>No record</i>	380251	6242116	<i>No record</i>	<i>No record</i>	Dieback-free		
Plot 39 - St John	<i>St John CP</i>	1930 - 39	<i>No record</i>	376540	6245941	<i>No record</i>	Uninterpretable	Mostly Dieback-free with some Dieback present		
Plot 40 - Layman	<i>Butler NP</i>	Virgin	<i>No record</i>	361190	6234312	<i>No record</i>	<i>No record</i>	Dieback present		
Plot 41 - Barrabup	FHZ	2000 - 04	2001	383106	6243284	Shelterwood	Dieback-free	Dieback-free		
Plot 42 - Cambray	Available forest	1990 - 99	1995	379254	6247701	Shelterwood	Dieback-free	Dieback-free		
Plot 43 - Barrabup	Available forest	2000 - 04	2002	383193	6244190	Selective	Dieback-free	Dieback-free		
Plot 44 - Cambray	Available forest	1990 - 99	1995	380490	6248172	Selective	Dieback-free	Dieback-free		
Plot 45 - Butler	Available forest	1990 - 99	1997	360191	6236033	Selective	Dieback-free	Dieback-free		
Plot 46 - Barrabup	Available forest	2000 - 04	2001	383302	6242983	Gap	Dieback-free	Dieback-free		
Plot 47 - Cambray	Available forest	1990 - 99	1995	382801	6246309	Gap	Dieback-free	Dieback-free		
Plot 48 - Butler	<i>Butler NP</i>	1990 - 99	1997	363144	6240901	Gap	Dieback-free	Dieback-free		

**DONNELLY DISTRICT
EASIER.01
BLOCK
FORESTLOGS.RR
PHYTOTHORA CANNABOM
OCCURRENCE MAP**

UNINFESTED (PROTECTABLE)
Determined by a qualified interpreter to be free of plant disease
Symptoms which indicate the presence of *Phytophthora*

UNINTERPRETABLE (PROTECTABLE)
Where susceptible plants are absent or too few to enable the
interpretation of *Phytophthora* presence or absence

INFESTED
Determined by a qualified interpreter to have plant disease
Symptoms consistent with the presence of *Phytophthora*

BOUNDARY OF INTERPRETATION

ADDITIONAL NOTES
This project was completed in accordance with the requirements of the Forest Management Act 1972 (FMA) and the Forest Management Regulations 1973 (FMR).
The map was prepared for the purpose of providing information to the public regarding the presence of *Phytophthora* in the Donnelly District.

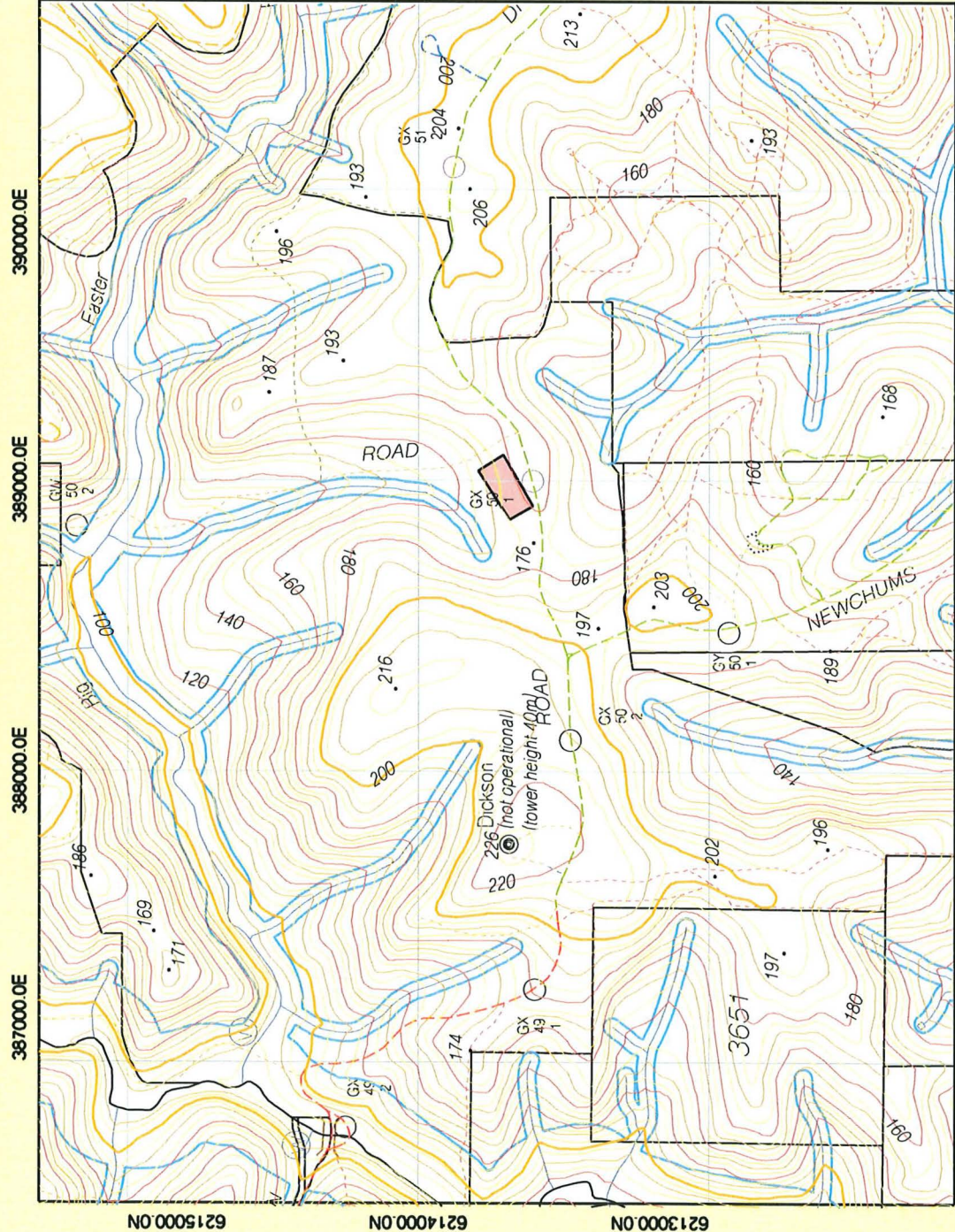
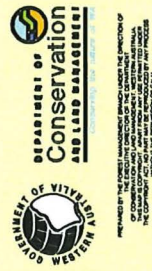
ADDITIONAL NOTES
The map was prepared for the purpose of providing information to the public regarding the presence of *Phytophthora* in the Donnelly District.

PRODUCT VERSION STATEMENT

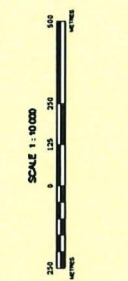
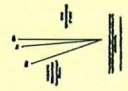
Product	Version	Release Date	Author	Reviewer	Approved
Phytophthora Occurrence Map	1.0	1/1/2010	J. Smith	J. Smith	J. Smith

ADDITIONAL STATEMENT

Category	Area	Value
Uninfested	100	100
Uninterpretable	100	100
Infested	100	100
Other	100	100



**PROJECTION: TRANSVERSE MERCATOR 1972 UTM 48
HORIZONTAL DATUM: GEODETIC DATUM AUSTRALIA 1984
VERTICAL DATUM: AUSTRALIAN MEAN SEA LEVEL**



LEGEND

- 1. Road (solid line)
- 2. Road (dashed line)
- 3. Road (dotted line)
- 4. Road (dash-dot line)
- 5. Road (long-dash line)
- 6. Road (short-dash line)
- 7. Road (very short-dash line)
- 8. Road (no line)
- 9. Road (other line)
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BLACKWOOD DISTRICT SURFACE BLOCK

FOREST CHECK PLOTS 14 & 15

PHYTOPHTHORA CINNAMOMI
OCCURRENCE MAP

MAP LEGEND

UNINFESTED (PROTECTABLE)

Determined by a qualified interpreter to be free of plant disease symptoms which indicates the presence of *P. cinnamomi*.

UNINTERPRETABLE (PROTECTABLE)

Where susceptible plants are absent or too few to enable the interpretation of *P. cinnamomi* presence or absence.

INFESTED

Determined by a qualified interpreter to have plant disease symptoms consistent with the presence of *P. cinnamomi*.

BOUNDARY OF INTERPRETATION

AGE LIMITS FOR THIS MAP

Map boundaries should be checked before use. Occurrences recorded in this study within 1 year (1 January 2011).

This map should not be used if it is older than 5 years (1 January 2012).

Areas that have not been inspected in their lifetime are not included in this map. New areas may be added to the map.

MAP LIMITATIONS

The smallest scale of interpretation is 1:100,000 for the purpose of this map. It is not intended to be used for any other purpose.

Interpretation is based on the presence of *P. cinnamomi* in the ground. It does not indicate the presence of *P. cinnamomi* in the air.

PRODUCT VERSION STATEMENT

Product	Code	Complete Date	Interpret	Digitized	Rechecked	Expiry Date
Occurrence	Surface_ICP1415	04/02/09	JAC	MAS	05/02/10	04/02/11
This Map ID	Surface_ICP1415					

AREA STATEMENT

Category	Area for	Notes
UNINFESTED	1.3	
UNINTERPRETABLE	1.0	
INFESTED	1.0	
TOTAL AREA	2.3	

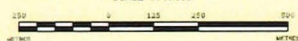
LEGEND

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SCALE 1:10 000



PROJECTION: TRANSVERSE MERCATOR UTM 111 ZONE 50
HORIZONTAL DATUM: GDA94
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM 1984



DEPARTMENT OF ENVIRONMENT AND CONSERVATION

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6378000.00MN 6379000.00MN 6380000.00MN

PERTH HILLS DISTRICT
HOLYOAKE
BLOCK
FOREST CHECK PLOT 21
PHYTOPHTHORA CINNAMOMI
OCCURRENCE MAP

- MAP LEGEND
- UNINFESTED (PROTECTABLE)**
Determined by a qualified interpreter to be free of plant disease symptoms which indicates the presence of *P. cinnamomi*.
 - UNINTERPRETABLE (PROTECTABLE)**
Where susceptible plants are absent or too few to enable the interpretation of *P. cinnamomi* presence or absence.
 - INFESTED**
Determined by a qualified interpreter to have plant disease symptoms consistent with the presence of *P. cinnamomi*.

BOUNDARY OF INTERPRETATION

AGE LIMITS FOR THIS MAP

Map boundaries shown by checked entries Operations provided in this map, in order from 1 year (January 2011).

This map should not be used if it is older than 3 years (January 2011).

Areas that have been in Operation in their income available and should be the used prior to further "New" data.

MAP LIMITATIONS

The uninfested areas of the map should not be used as a basis for the presence of *P. cinnamomi* in the area.

MAP METHOD
Interpretation using GPS
Data collected using GPS
Data collected using GPS

PRODUCT VERSION STATEMENT

Product	Code	Complete Date	Interpret	Digitized	Recheck Date	Expiry Date
Occurrence	Holyoake_FPC21	05/01/10	JAC	ANA - 11/01/10	05/01/11	05/01/13
This Map ID	Holyoake_FPC21					

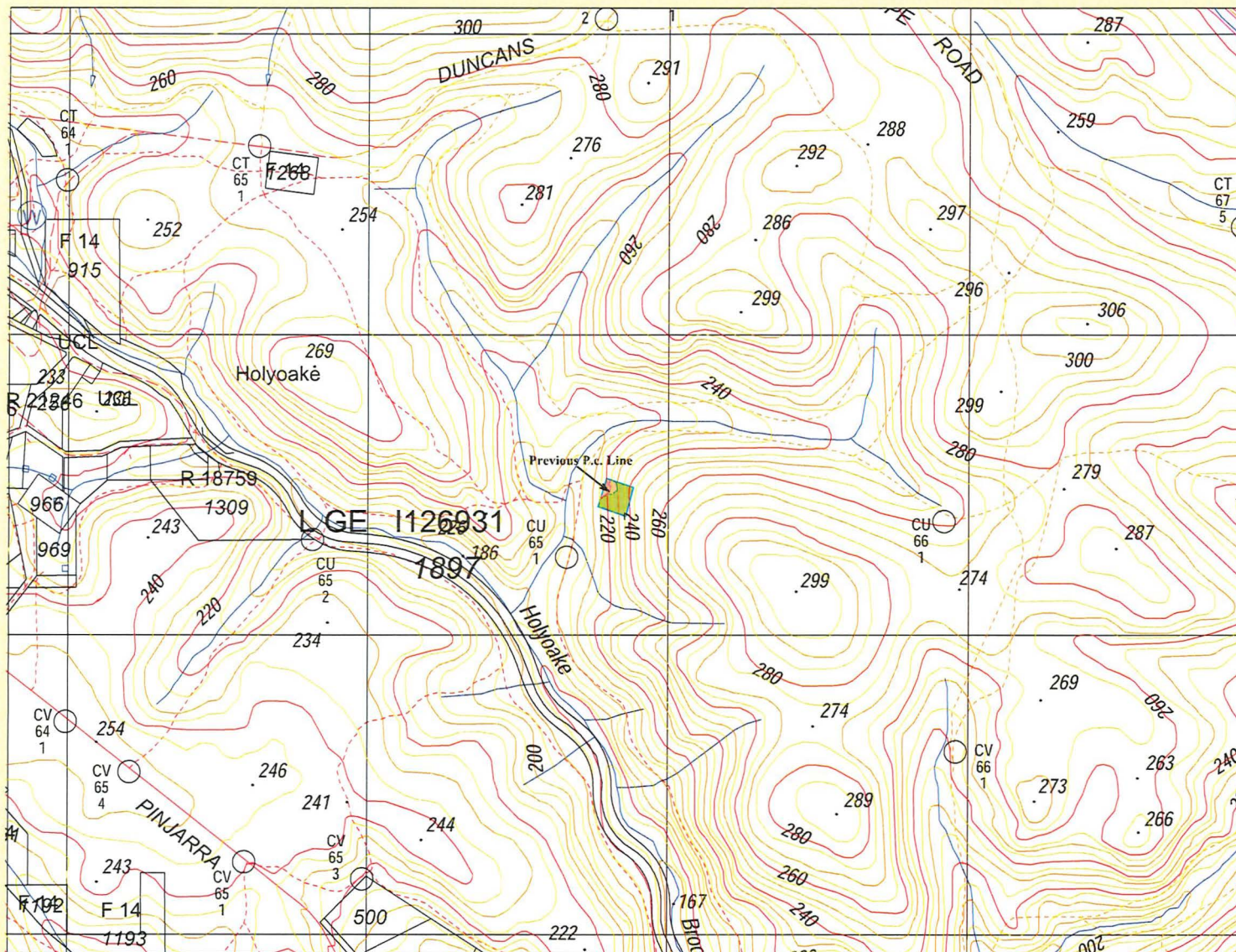
AREA STATEMENT

Category	Area ha	Notes
UNINFESTED	7	
UNINTERPRETABLE		
INFESTED	2	
UNPROTECTABLE		
TOTAL AREA	9	



DEPARTMENT OF
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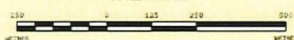


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SCALE 1:10 000




PROJECTION: TRANSVERSE MERCATOR UTM 114 EZONE 50
HORIZONTAL DATUM: AUSTRALIAN NATIONAL 1984
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM 1984



441000.00ME

PHYTOPHTHORA CINNAMOMI
OCCURRENCE MAP

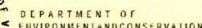
INFESTED
 Determined by a qualified Interpreter to have plant disease symptoms consistent with the presence of *Pannoniomyces*.

— BOUNDARY OF INTERPRETATION

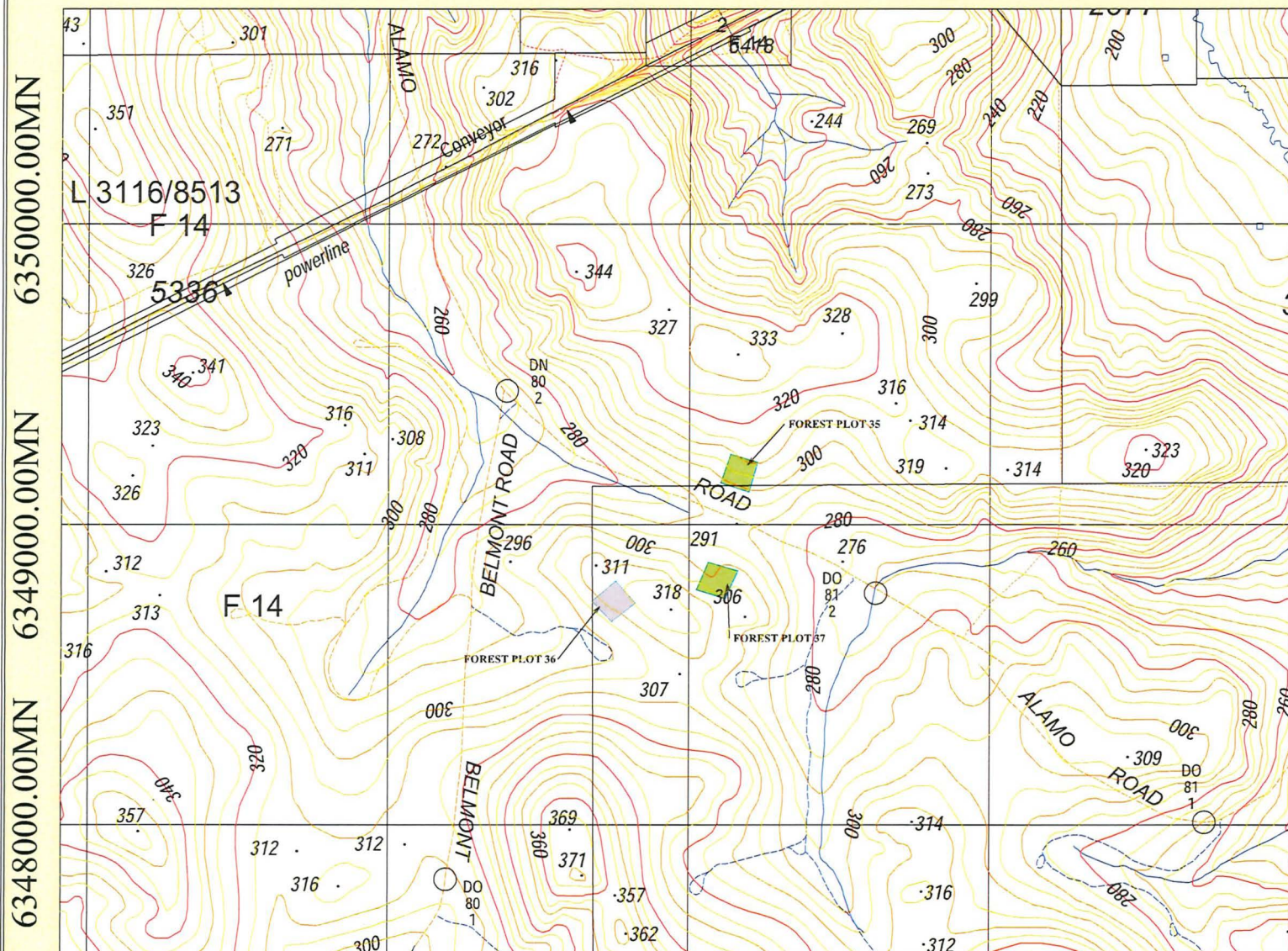
Boundaries published online 13 May 2015

Product	Code	Complete Date	Include		Recheck Due	Expire Date
			Intgrs	Degreed		
Occurrence	bell_FPC353637	06/01/10	JMC	ANA - 11/01/10	06/01/11	06/01/11
This Map ID	bell_FPC353637					

Category	Area ha	Notes
UNINFESTED	2.0	
UNINTERPRETABLE	1.0	
INFESTED		
UNPROTECTABLE		
TOTAL AREA	3.0	

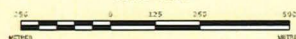


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2 LANE UNPAVED ROAD		TRUCK LANE	
2 LANE UNPAVED ROAD		DRIVE	
1 LANE UNPAVED ROAD		LOADED RAMP	
1 LANE UNPAVED ROAD		WATER POINT	
VEHICULAR TRACK		STOP HEIGHT	
FORMERLY PAVED			
REFERENCE TREE			
IMPERVIOUS			
CONCRETE (asphalt)			

SCALE 1 : 5 000

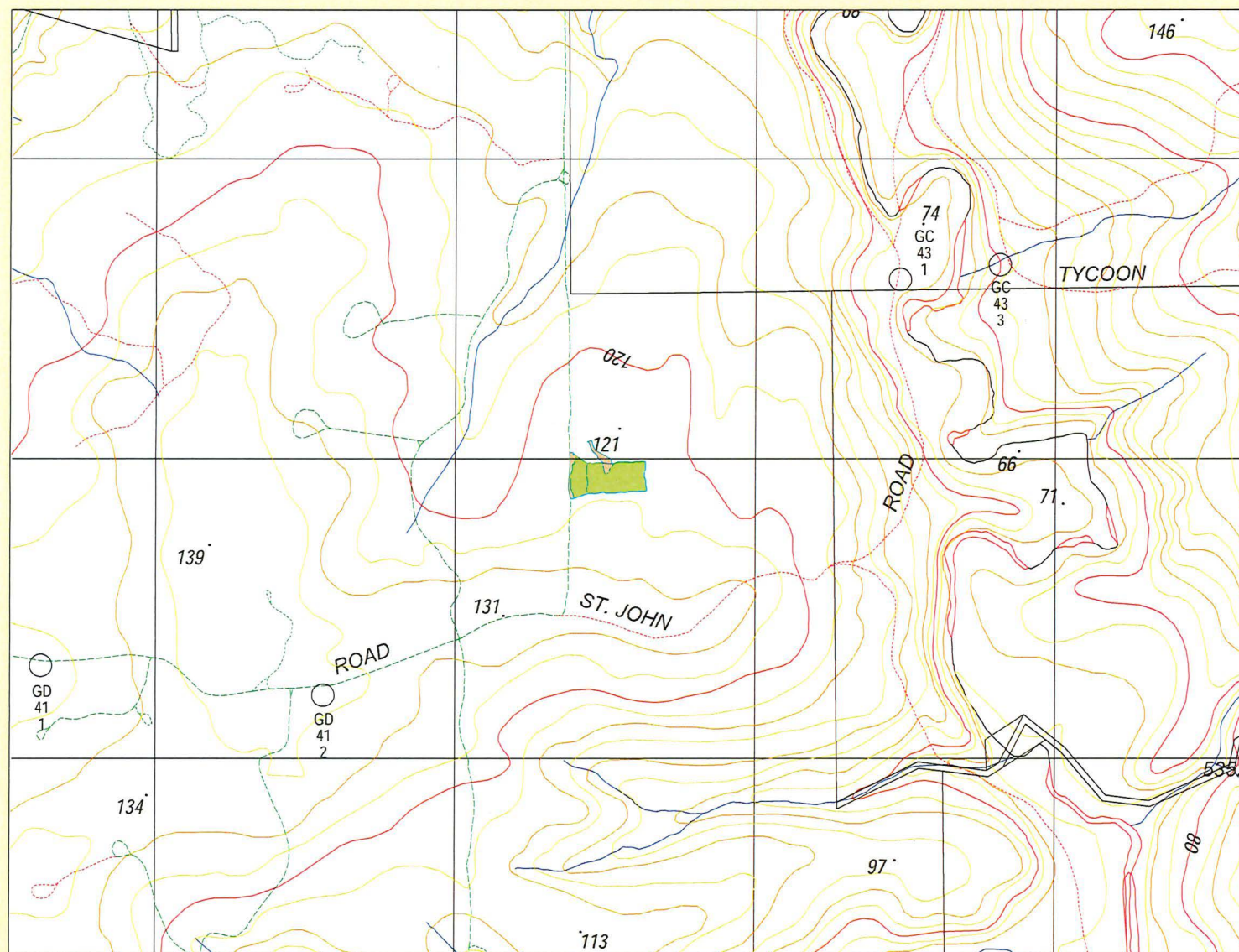


PROJECTION: TRANSVERSE MERCATOR UTM 17T UZM 50
HORIZONTAL DATUM: GEODESIC DATUM AUSTRALIA 1984
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM 1981



378000.00ME

6245000.00MN




FOREST CHECK PLOT 39

MAP LEGEND

UNINTERPRETABLE (PROTECTABLE)

Where susceptible plants are absent or too few to enable the interpretation of *P. cinnamomi* presence or absence.

INFESTED
 Determined by a qualified Interpreter to have plant disease symptoms consistent with the presence of *P.cinnamomi*.

— BOUNDARY OF INTERPRETATION

AGE 18MIS FOR THIS MAP

Keep Businesses insured on checklist before Operations proceed if that map is older than 1 year (December 2010)

Administrative have had an Operations in place, become unreasonable and should be checked prior to Fostering / New activities.

REFERENCES

This smaller, area of interpretation that can be gathered on this map are 1 mile wide in diameter, representing 1/8 mile diameter on the ground. Areas less than this are subdivided to the site.

HARMETHOD

MAP-METHOD

- Integrated using files the Survey
- Boundaries captured using GPS
- Boundaries transferred to map to map frame

PRODUCT VERSION STATEMENT

Product	Code	Complete Date	Intake		Recheck Due	Expire Date
			Intaps	Dyslens		
Occurrence	stphs_tpc38	23/12/09	PRD	ANA - 1101/10	23/12/10	23/12/10
This Map ID	stphs_tpc39					

ANCA STATEMENT

Categories	Area ha	Notes
UNINFESTED	25	
UNINTERPRETABLE		
INFESTED	4	
UNPROTECTABLE		
TOTAL AREA	29	

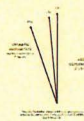
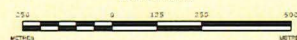
— LEGEND

2 LANE SEALED ROAD
2 LANE UNSEALED ROAD
1 LANE SEALED ROAD
1 LANE UNSEALED ROAD
VEHICULAR TRACK
FOOTPATH, PAVEMENT
REFURBACE TRAIL
HYDROLOGY
CONTAINER (1) Audio Information

SWAMP
DAM
LOADING RAFT
WATER PUMP
SPOT HEIGHT

SWAMP
DAMP
LOADED NAME
WATER FOUNT
SPOT HEIGHT

SCALE 1 : 5 000

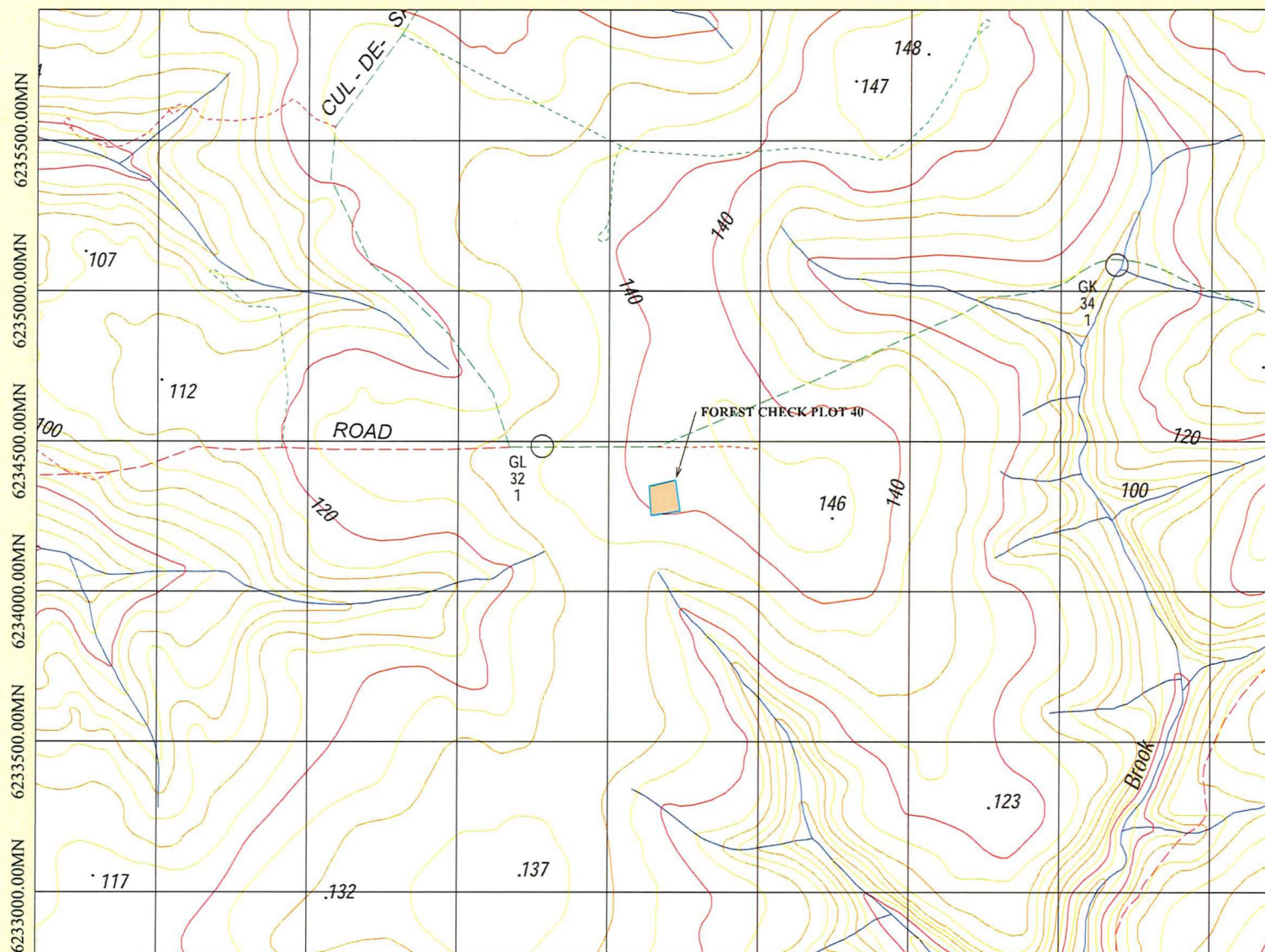


PROJECTION: TRANSVERSE MERCATOR UTM 11T UZON 50
HORIZONTAL DATUM: GEOCENTRIC DATUM AUSTRALIA 1984
VERTICAL DATUM: AUSTRALIAN HEIGHT ON DATUM 1971

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359500.00ME 360000.00ME 360500.00ME 361000.00ME 361500.00ME 362000.00ME 362500.00ME 363000.00ME



BLACKWOOD DISTRICT LAYMAN BLOCK

FOREST CHECK PLOT 40
PHYTOPHTHORA CINNAMOMI
OCCURRENCE MAP

MAP LEGEND

- UNINFESTED (PROTECTABLE)**
Determined by a qualified interpreter to be free of plant disease symptoms which indicates the presence of *P.cinnamomi*.
- UNINTERPRETABLE (PROTECTABLE)**
Where susceptible plants are absent or too few to enable the interpretation of *P.cinnamomi* presence or absence.
- INFESTED**
Determined by a qualified interpreter to have plant disease symptoms consistent with the presence of *P.cinnamomi*.

— BOUNDARY OF INTERPRETATION

AGE LIMITS FOR THIS MAP

Map boundaries shown for the age limit policy. Occurrences (shown on this map) are older than 1 year (as the 2007). This map should not be used if it is older than 5 years (as the 2007).

Areas that have not been surveyed in their lifetime are not shown and should be considered as further 'new' each year.

MAP LIMITATIONS

This is a map of interpretation of the presence of *P.cinnamomi* on the map and is not a map of the ground. It is not a map of the ground. It is not a map of the ground.

MAP METHOD

Interpretation using the map. Data is not shown on the map. Data is not shown on the map. Data is not shown on the map.

PRODUCT VERSION STATEMENT

Product	Code	Complete Date	Interpretation Date	Recheck Date	Expiry Date
Occurrence	Layman_Rp40	01/06/06	RC	01/06/07	01/06/09
This Map ID	Layman_Rp40				

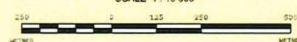
AREA STATEMENT

Category	Area	Notes
UNINFESTED		
UNINTERPRETABLE		
INFESTED	9	
UNPROTECTABLE		
TOTAL AREA	9	

LEGEND

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SCALE 1:10 000



PROJECTION: TRANSVERSE MERCATOR UTM 51E ZONE OF
HORIZONTAL DATUM: GDA94
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM 1984



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