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
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Revision: 0.01

Acceptance and Release Notice

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Approved: _____ Date: / /
(Manager/Project Manager)

Release Status:

Release Number	Date	Reason for Release
1	5.2.2010	Initial Release

Table of Contents

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.

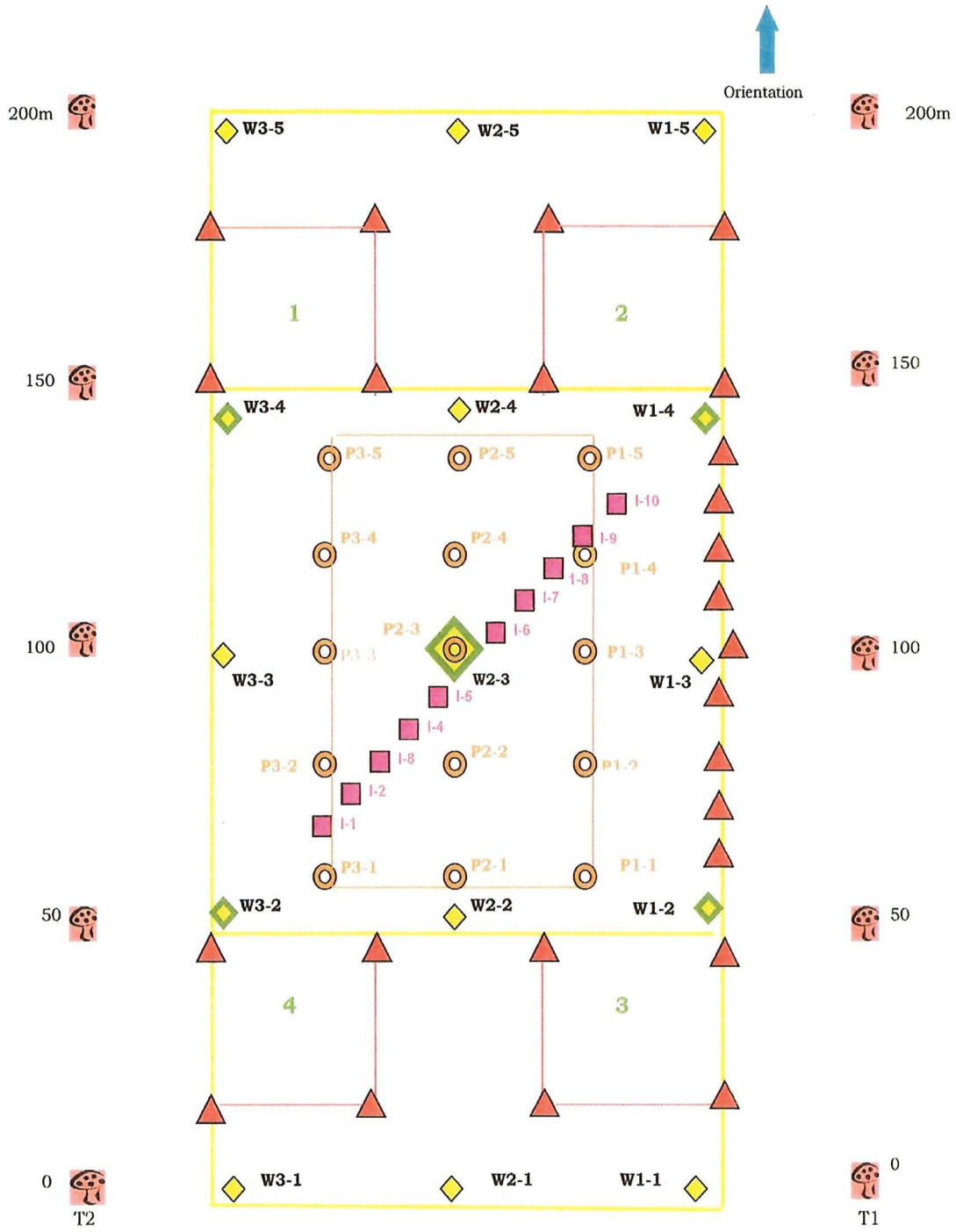


Figure 1: FORESTCHECK plot layout

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

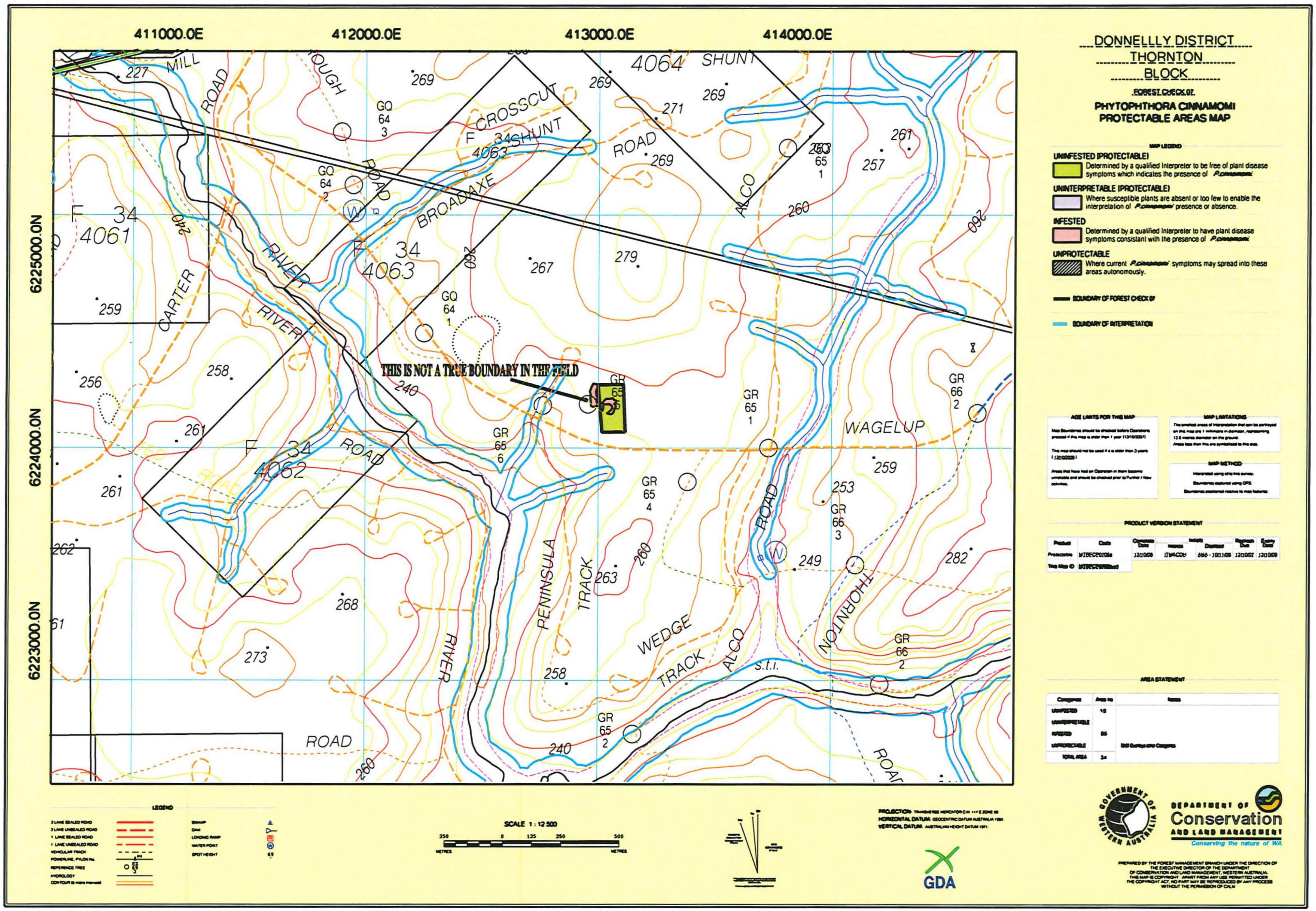
Havel, J.J. (1975) Site Vegetation Mapping in the Northern Jarrah Forest (Darling Range). 2. Location and Mapping of Site-Vegetation Types

6 Appendix

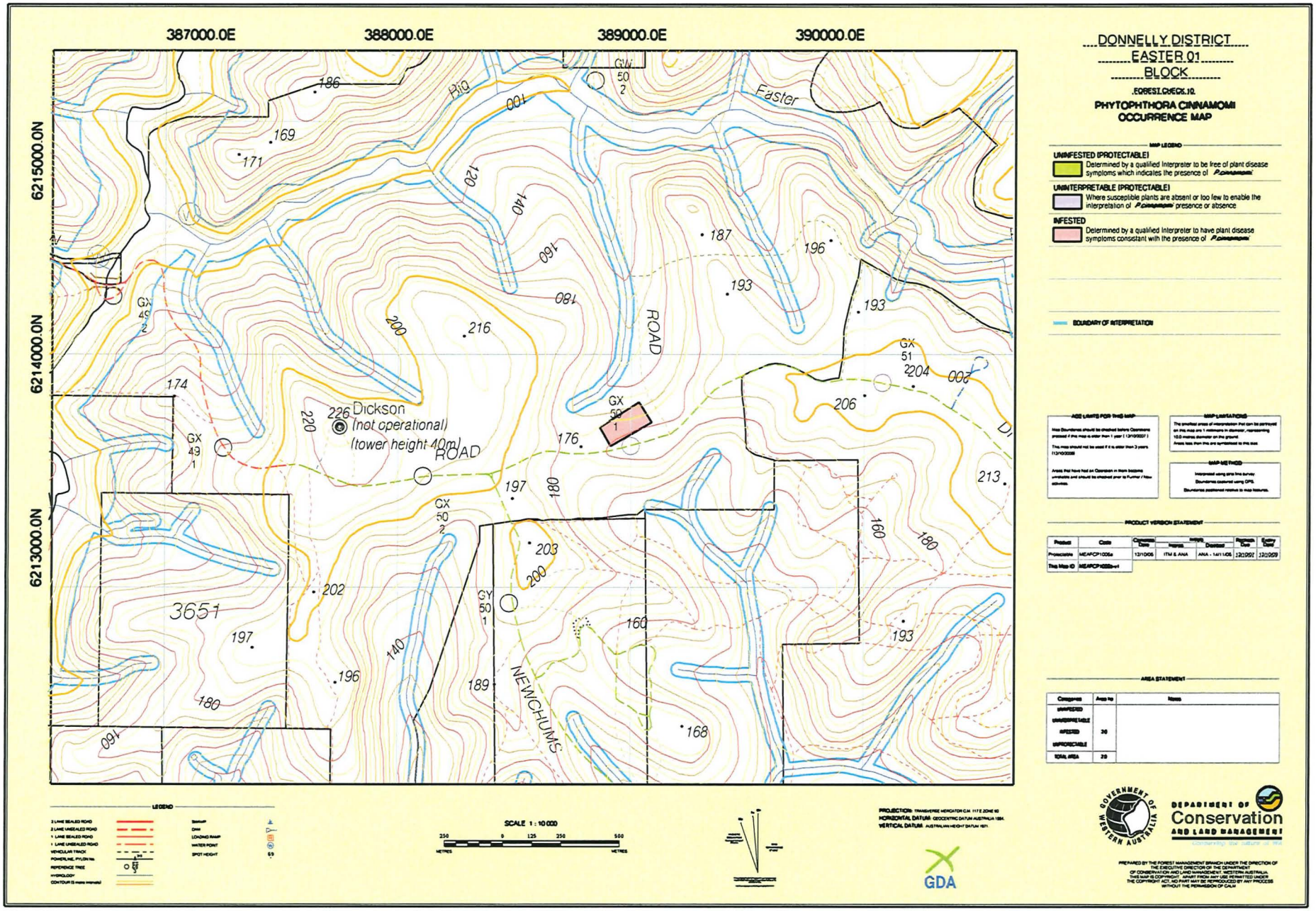
Appendix 1: FORESTCHECK plot sites

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 - Winnejup	*Greater Kingston NP*	1940 - 49	*No record*	437927	6229204	*No record*	*No record*	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	*Easter NP*	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	*Lane-Poole NP*	Virgin	*No record*	427620	6323349	*No record*	Dieback-free	Uninterpretable - BURNT - but should be Dieback-free	Dieback-free	
Plot 17 - Surface	*Lane-Poole NP*	Virgin	*No record*	431154	6334857	*No record*	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	*No record*	427799	6386450	*No record*	Dieback-free	Dieback-free		
Plot 23 - Cameron	Available forest	1980 - 89	*No record*	428271	6390154	*No record*	Dieback-free	Dieback-free		
Plot 24 - Kennedy	Available forest	1920 - 29	*No record*	432424	6384848	*No record*	*No record*	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	*Lane-Poole NP*	Virgin	*No record*	443058	6325915	*No record*	*No record*	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	*Lane-Poole NP*	1950 - 59	1996	445466	6333135	Not cut but available	*No record*	Dieback-free		
Plot 33 - Stockyard	*Lane-Poole NP*	1990 - 99	1998	446732	6333999	Shelterwood	Dieback-free	Dieback-free		
Plot 34 - Stockyard	*Lane-Poole NP*	1990 - 99	1998	446730	6333139	Mixed	Dieback-free	Dieback-free		
Plot 35 - Bell	*Lane-Poole CP*	Virgin	1996	440165	6349177	Not cut but available	*No record*	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	*No record*	380251	6242116	*No record*	*No record*	Dieback-free		
Plot 39 - St John	*St John CP*	1930 - 39	*No record*	376540	6245941	*No record*	Uninterpretable	Mostly Dieback-free with some Dieback present		
Plot 40 - Layman	*Butler NP*	Virgin	*No record*	361190	6234312	*No record*	*No record*	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	*Butler NP*	1990 - 99	1997	363144	6240901	Gap	Dieback-free	Dieback-free		



DONNELLLY DISTRICT
THORNTON
BLOCK
FOREST CHECK 07
PHYTOPHTHORA CINNAMOMI
PROTECTABLE AREAS 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 consistant with the presence of P.cinnamomi
UNPROTECTABLE
Where current P.cinnamomi symptoms may spread into these areas autonomously.
BOUNDARY OF FOREST CHECK 07
BOUNDARY OF INTERPRETATION
THIS IS NOT A TRUE BOUNDARY IN THE FIELD
411000.0E
412000.0E
413000.0E
414000.0E
6225000.0N
6224000.0N
6223000.0N
MILL ROAD
CROSSCUT
SHUNT
BROADAXE
RIVER ROAD
CARTER
PENINSULA TRACK
WEDGE TRACK
ALCO ROAD
WAGELUP
THORNTON
F 34 4061
F 34 4062
F 34 4063
4064
SCALE 1 : 12 500
GDA
DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA
GOVERNMENT OF WESTERN AUSTRALIA



DONNELLY DISTRICT
EASTER 01
BLOCK

.EQ6ES1.CK6CK.10.

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 consistant with the presence of *P.cinnamomi*

BOUNDARY OF INTERPRETATION

AGE LIMITS FOR THIS MAP

Map Boundaries should be checked before Operations proceed if this map is older than 1 year (13/10/2027)

This map should not be used if it is older than 3 years. 13/10/2028

Areas that have had an Operation in them become unreliable and should be checked prior to Further / New activities.

MAP LIMITATIONS

The smallest areas of interpretation that can be portrayed on this map are 1 millimetre in diameter, representing 10.0 metres diameter on the ground.
Areas less than this are symbolised in this way.

MAP METHOD

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Boundaries captured using GPS.
Boundaries positioned relative to map features.

PRODUCT VERSION STATEMENT

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This Map ID	MEAFCP1006a-r1					

AREA STATEMENT

Categories	Area ha	Notes
UNINFESTED		
UNINTERPRETABLE		
INFESTED	39	
UNPROTECTABLE		
TOTAL AREA	39	

LEGEND

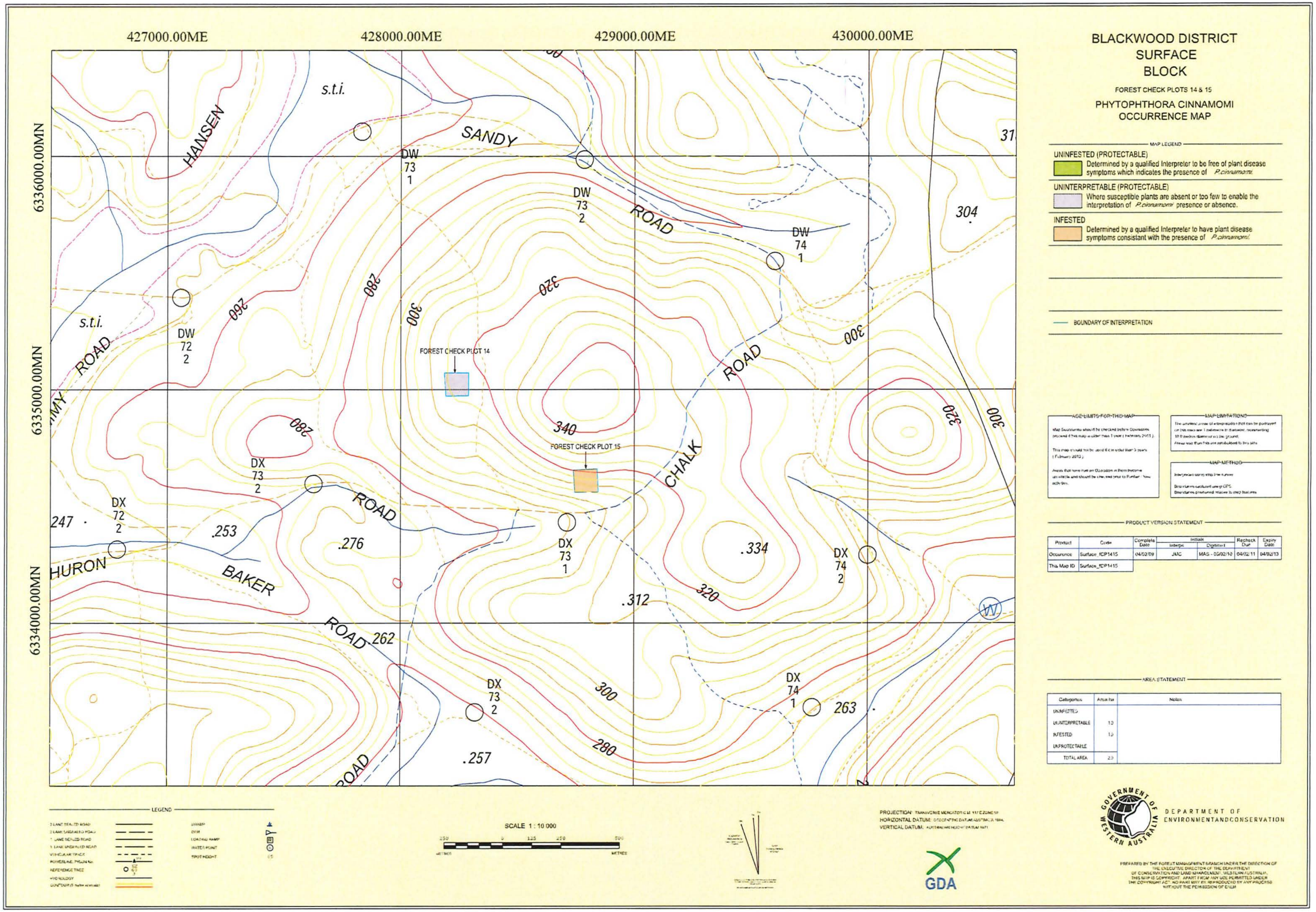
2 LANE SEALED ROAD
2 LANE UNSEALED ROAD
1 LANE SEALED ROAD
1 LANE UNSEALED ROAD
VEHICULAR TRACK
POWERLINE, PYLON No.
REFERENCE TREE
HYDROLOGY
CONTOUR (5 metre interval)
SWAMP
DAM
LOOKING RAMP
WATER POINT
SPOT HEIGHT

SCALE 1 : 10 000

250 0 125 250 500
METRES METRES

PROJECTION: TRANSVERSE MERCATOR GM. 117 E ZONE 50
HORIZONTAL DATUM: GEOCENTRIC DATUM AUSTRALIA 1994.
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM 1971.

GOVERNMENT OF WESTERN AUSTRALIA
DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA


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 consistant with the presence of P.cinnamomi.
BOUNDARY OF INTERPRETATION
MAP METHOD
Boundaries captured using GPS.
Boundaries positioned relative to map features.
PRODUCT VERSION STATEMENT
Product | Code | Complete Date | Initials: Interps, Digitised | Recheck Due | Expiry Date
Occurence | Surface_fCP1415 | 04/02/09 | JMC | MAS - 05/02/10 | 04/02/11 | 04/02/13
This Map ID | Surface_fCP1415
AREA STATEMENT
Categories | Area ha | Notes
UNINFESTED
UNINTERPRETABLE 1.0
INFESTED 1.0
UNPROTECTABLE
TOTAL AREA 2.0
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428000.00ME
429000.00ME
430000.00ME
6336000.00MN
6335000.00MN
6334000.00MN
s.t.i.
HANSEN
SANDY
ROAD
CHALK
ROAD
BAKER
ROAD
HURON
FOREST CHECK PLOT 14
FOREST CHECK PLOT 15
DW 73 1
DW 73 2
DW 74 1
DW 72 2
DX 73 2
DX 72 2
DX 73 1
DX 74 2
DX 73 2
DX 74 1
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304
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263
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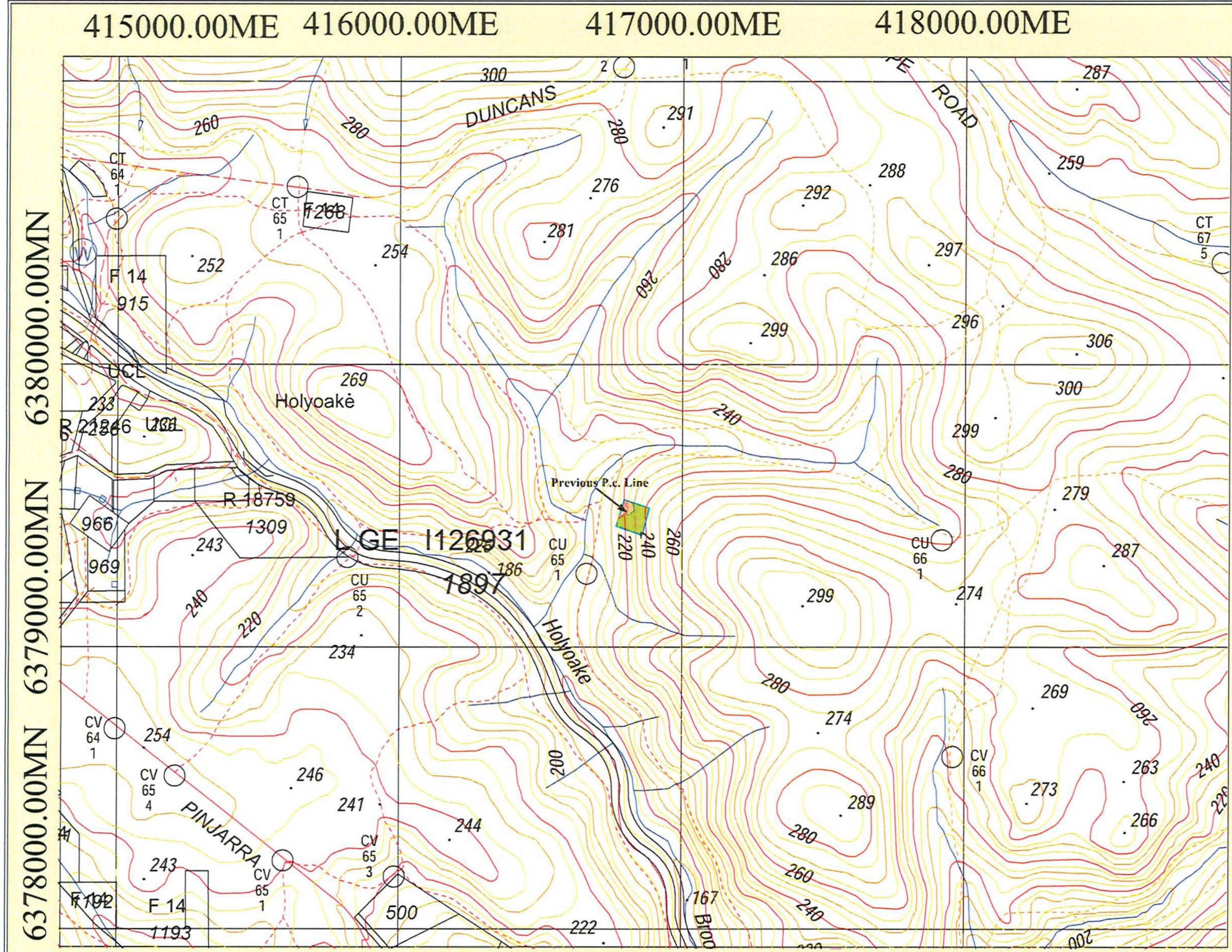
LEGEND
SCALE 1 : 10 000
METRES
PROJECTION:
HORIZONTAL DATUM:
VERTICAL DATUM:
GDA
GOVERNMENT OF WESTERN AUSTRALIA
DEPARTMENT OF
ENVIRONMENTANDCONSERVATION



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 consistant with the presence of *P.cinnamomi.*

BOUNDARY OF INTERPRETATION

AGE LIMITS FOR THIS MAP

Map Boundaries should be checked before Operations proceed if this map is older than 1 year (January 2011).

This map should not be used if it is older than 3 years (January 2013).

Areas that have had an Operation in them become unreliable and should be checked prior to Further / New activities.

MAP LIMITATIONS

The smallest areas of interpretation that can be portrayed on this map are 1 millimetre in diameter, representing 10.0 metres diameter on the ground.
Areas less than this are symbolised to this size.

MAP METHOD

Interpreted using strip line survey.

Boundaries captured using GPS.

Boundaries positioned relative to map features.

PRODUCT VERSION STATEMENT

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This Map ID	hollyoake_FPC21					

AREA STATEMENT

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

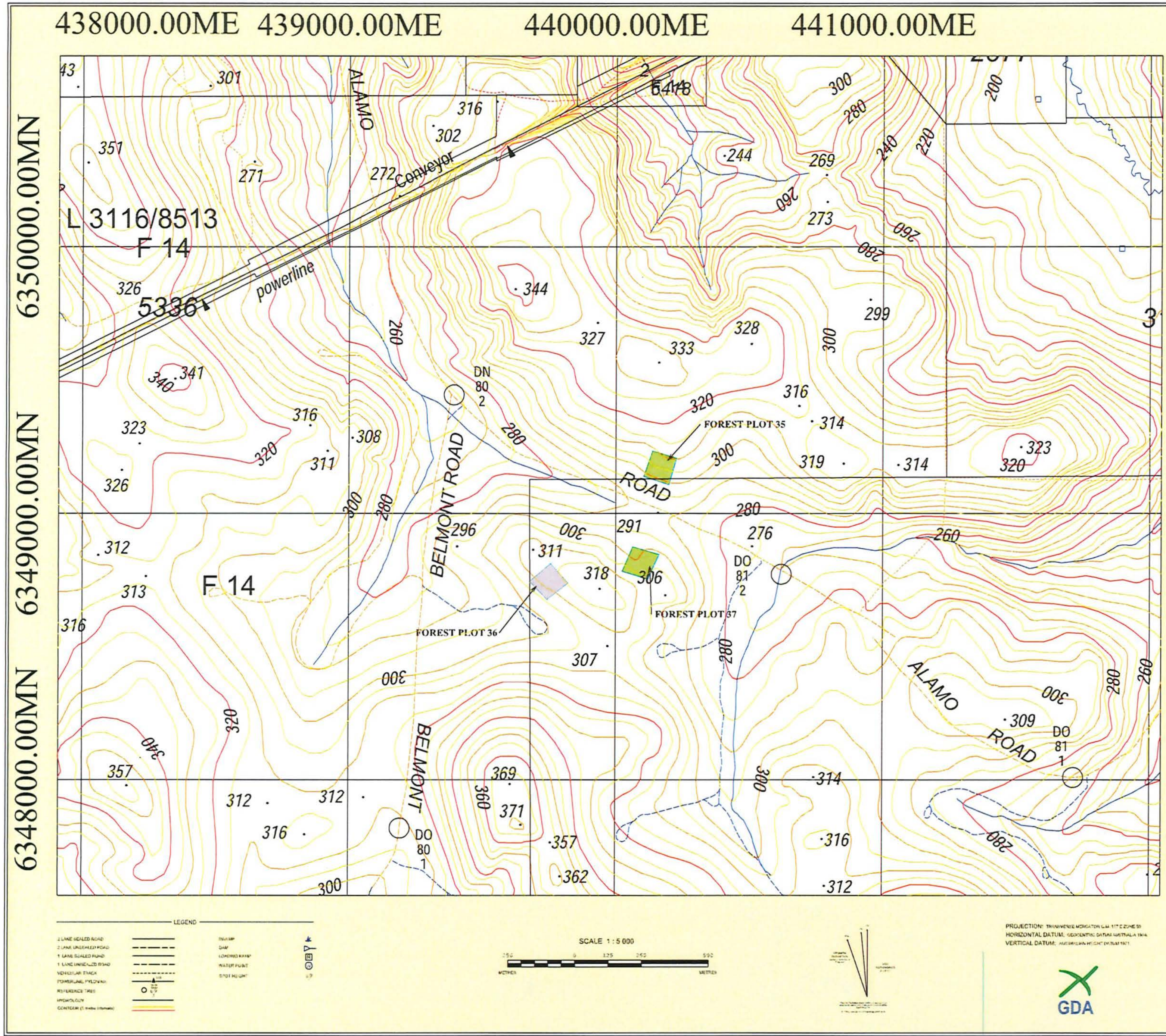
LEGEND

SCALE 1 : 10 000

PROJECTION: TRANSVERSE MERCATOR
HORIZONTAL DATUM:
VERTICAL DATUM:

GDA

GOVERNMENT OF WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT AND CONSERVATION



WELLINGTON DISTRICT
BELL
BLOCK

FOREST CHECK PLOTS 35, 36 & 37

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 consistant with the presence of *P.cinnamomi*.

BOUNDARY OF INTERPRETATION

AGE LIMITS FOR THIS MAP

Map Boundaries should be checked before Operations proceed if this map is older than 1 year (January 2011)

This map should not be used if it is older than 2 years (January 2013)

Areas that have had an Operation in them become unstable and should be checked prior to Further / New activities

MAP LIMITATIONS

The smallest areas of interpretation that can be portrayed on this map are 1 millimetre in diameter, representing 5 metres diameter on the ground.
Areas less than this are symbolised to this size.

MAP METHOD

Interpreted using field line survey.

Boundaries captured using GPS.

Boundaries positioned relative to map features.

PRODUCT VERSION STATEMENT

Product	Code	Complete Date	Initials Interps	Initials Digitised	Recheck Due	Expiry Date
Occurence	bell_FPC353637	06/01/10	JMC	ANA - 11/01/10	06/01/11	06/01/13
This Map ID	bell_FPC353637					

AREA STATEMENT

Categories	Area ha	Notes
UNINFESTED	23	
UNINTERPRETABLE	13	
INFESTED		
UNPROTECTABLE		
TOTAL AREA	33	

GOVERNMENT OF WESTERN AUSTRALIA
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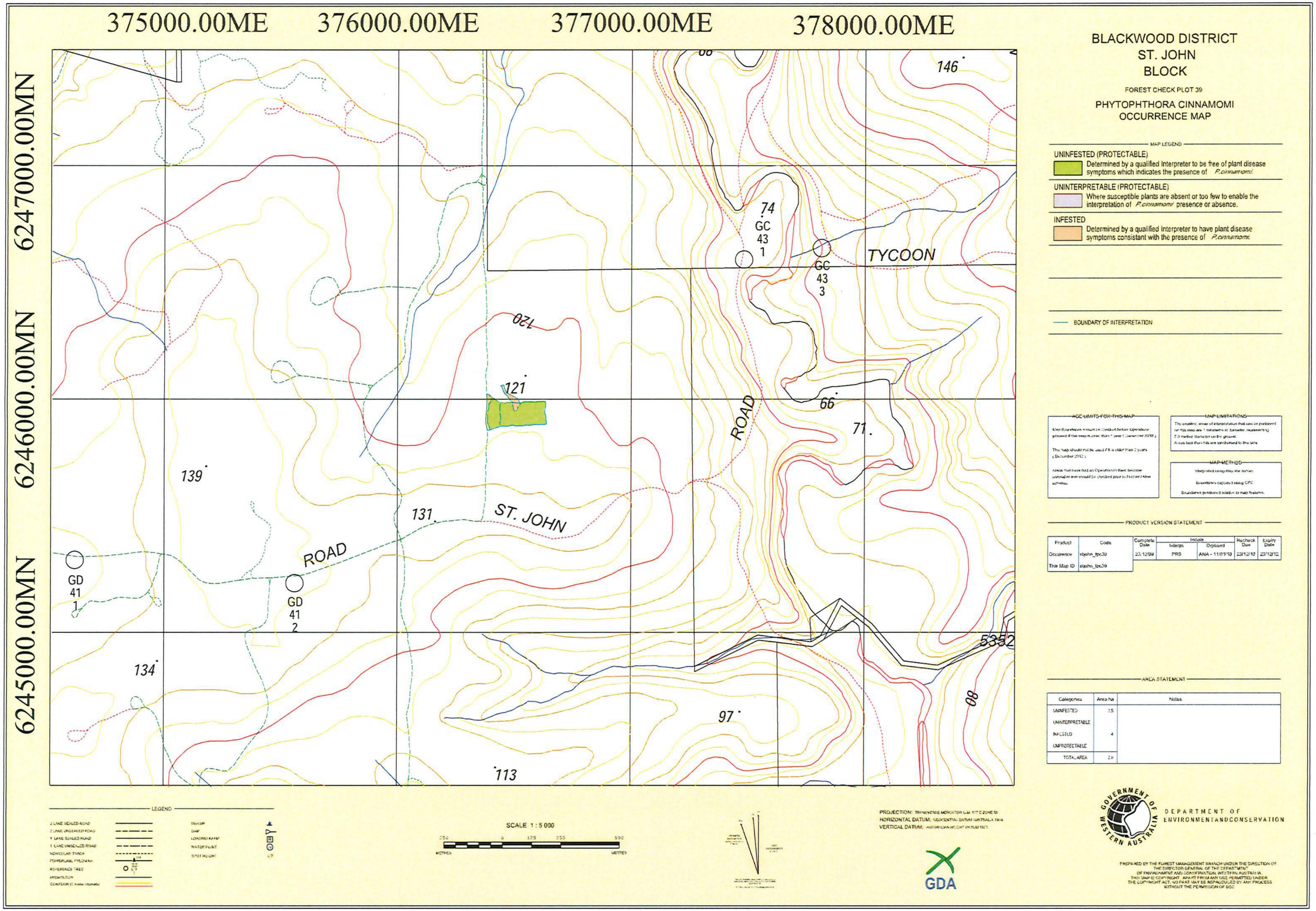
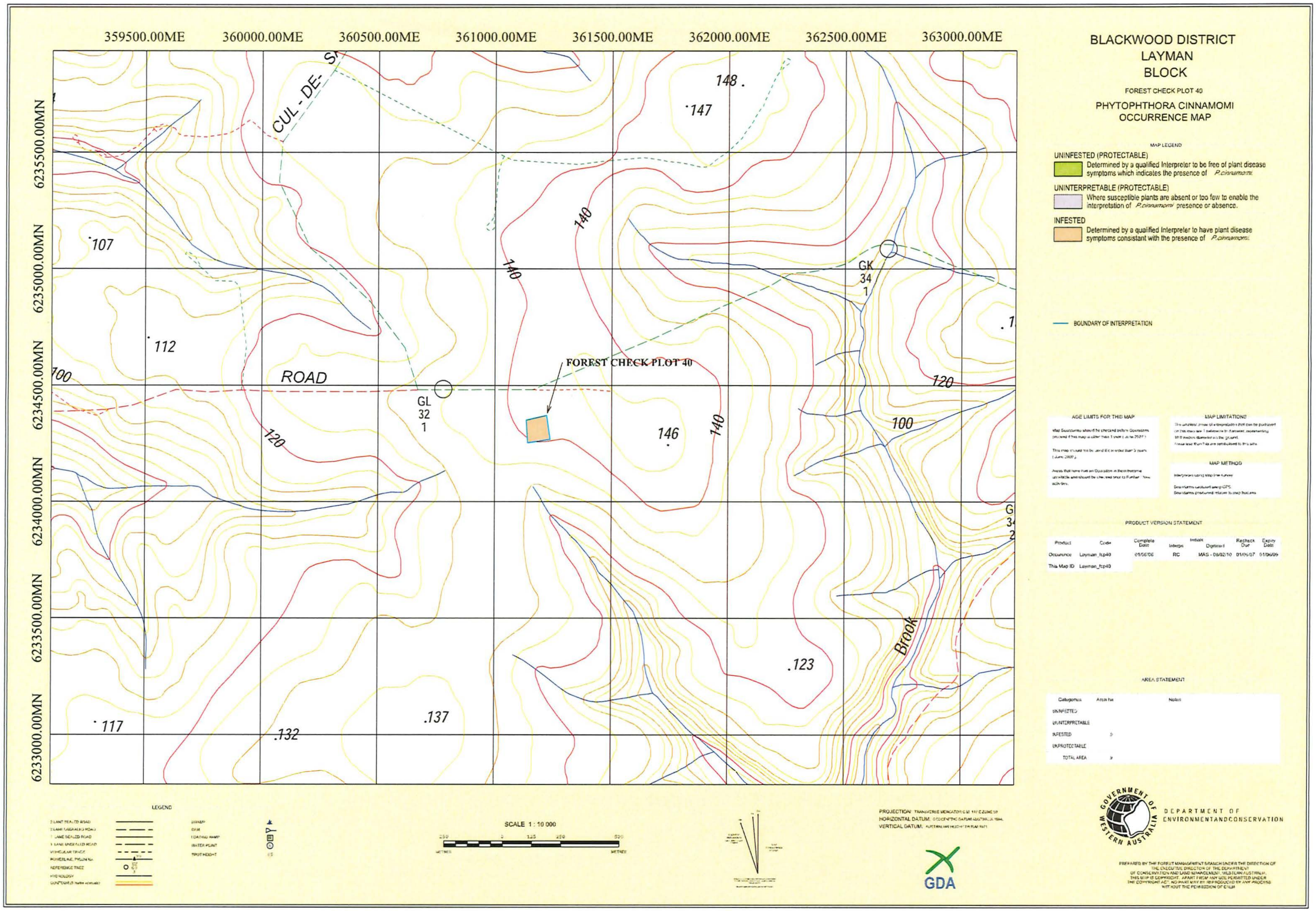
GDA



375000.00ME
376000.00ME
377000.00ME
378000.00ME
6247000.00MN
6246000.00MN
6245000.00MN
BLACKWOOD DISTRICT
ST. JOHN
BLOCK
FOREST CHECK PLOT 39
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 consistant with the presence of P.cinnamomi.
BOUNDARY OF INTERPRETATION
TYCOON
ROAD
ST. JOHN
ROAD
146
74
GC 43 1
GC 43 3
120
121
66
71
139
131
GD 41 1
GD 41 2
134
97
113
80
5352
AGE LIMITS FOR THIS MAP
MAP LIMITATIONS
Areas less than this are symbolised to this size.
MAP METHOD
Boundaries positioned relative to map features.
PRODUCT VERSION STATEMENT
Product | Code | Complete Date | Initials: Interps, Digitised | Recheck Due | Expiry Date
Occurence | stjohn_fpc39 | 23/12/09 | PRB | ANA - 11/01/10 | 23/12/10 | 23/12/12
This Map ID | stjohn_fpc39
AREA STATEMENT
Categories | Area ha | Notes
UNINFESTED | 2.5
UNINTERPRETABLE
INFESTED | .4
UNPROTECTABLE
TOTAL AREA | 2.9
LEGEND
SCALE 1 : 5 000
PROJECTION:
HORIZONTAL DATUM:
VERTICAL DATUM:
GDA
GOVERNMENT OF WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT AND CONSERVATION



359500.00ME
360000.00ME
360500.00ME
361000.00ME
361500.00ME
362000.00ME
362500.00ME
363000.00ME
6235500.00MN
6235000.00MN
6234500.00MN
6234000.00MN
6233500.00MN
6233000.00MN
CUL - DE-
148 .
·147
·107
140
140
140
GK
34
1
·112
FOREST CHECK PLOT 40
ROAD
100
120
GL
32
1
120
146
100
.123
Brook
·117
.132
.137
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 consistant with the presence of P.cinnamomi.
BOUNDARY OF INTERPRETATION
AGE LIMITS FOR THIS MAP
MAP LIMITATIONS
MAP METHOD
PRODUCT VERSION STATEMENT
Product
Code
Complete Date
Initials
Interps
Digitised
Recheck Due
Expiry Date
Occurence
Layman_fcp40
01/06/06
RC
MAS - 08/02/10
01/06/07
01/06/09
This Map ID
Layman_fcp40
AREA STATEMENT
Categories
Area ha
Notes
UNINFESTED
UNINTERPRETABLE
INFESTED
UNPROTECTABLE
TOTAL AREA
LEGEND
SCALE 1 : 10 000
PROJECTION:
HORIZONTAL DATUM:
VERTICAL DATUM:
GDA
GOVERNMENT OF WESTERN AUSTRALIA
DEPARTMENT OF
ENVIRONMENTANDCONSERVATION