



***Phytophthora* dieback Hygiene Survey
of the proposed Mt
Clarence/Corndarup and Mt
Adelaide/Irrerup Mountain Bike Trails
Area**

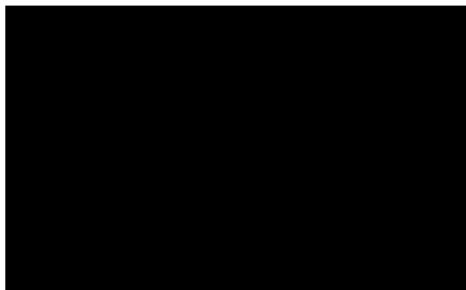
Prepared for:

Common Ground Trails



Report Date: 4 March 2016

Project Ref: GSBL214-Pc survey Mt Clarence
and Mt Adelaide-V1



RECORD OF DISTRIBUTION

No. of copies	Report File Name	Report Status	Date	Prepared for:	Initials
1	GSBL214-Pc survey Mt Clarence and Mt Adelaide-V1	V1	4/03/16	Common Ground Trails	
1	GSBL214-Pc survey Mt Clarence and Mt Adelaide-V1	V1	4/03/16	Great Southern Bio Logic	

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EXECUTIVE SUMMARY

The City of Albany (CoA) is currently assessing and planning the delivery of a network of mountain bike trails within the Mount Clarence/Condarup and Mount Adelaide/Irrerup reserves. As a part of preliminary project planning, the CoA wish to determine the current distribution of *Phytophthora* dieback across the proposed project area

Mount Clarence/Condarup and Mount Adelaide/Irrerup (the project area) form a single area of remnant native vegetation situated immediately east of the City of Albany central business district. The project area is adjoined by residential development to the north and west while the Port of Albany and associated industrial infrastructure adjoins much of the southern boundary. The eastern portion of the project area extends to the King George Sound high tide line as shown in Figure 1.

In accordance with the agreed project scope of works, the field survey was undertaken using a methodology referred to as a broadscale survey. The broadscale survey method is defined in the Department of Parks and Wildlife (DPAW) guideline, *Phytophthora Dieback Interpreters Manual for lands managed by the Department* (2015).

The vegetation across the project area broadly consisted of four primary vegetation categories including upland forests, granite outcrop communities and coastal dune systems. As the Broadscale survey methodology relies on the extrapolation of disease distribution from upland areas down to vegetation below, the focus of the survey area was within the upland woodland and forest systems, while some areas of granite outcrop and coastal dune vegetation were also surveyed.

The majority of the vegetation was considered to be interpretable based on a suitable density of indicator species, however, the granite shrubland south of Marine Drive was considered to be uninterpretable due to the lack of indicator species.

Disease expression varied from active disease expression with multiple indicator species deaths, often occurring in clusters, through to very subtle expression evidenced only by the presence of old deaths in amongst otherwise healthy vegetation. In some locations, particularly on the northern flanks of the project area, the vegetation was considered to be nearly uninterpretable. Occasional scattered deaths of *X. preissii* were evident through these areas and vegetation further upslope showed symptoms of active disease expression. Positive sample recoveries were located in the saddle between the two mounts, resulting in the extrapolation of disease presence across the northern slopes.

As shown in Figure 1, *Phytophthora* dieback is distributed across the entire project area, with the exclusion of the small hill to the south of Marine Drive, which has been classified as uninterpretable. Much of the infested classification has been placed across the project area using the mechanics of disease spread to extrapolate disease distribution from areas of observed disease expressions and from positive sample recoveries.

The mechanics of disease spread are based on the downhill movement of the disease through drainage lines and shallow groundwater movement. Further, disease spread is known to be caused by human traffic along disease vectors including walk trails, firebreaks and other vectors for soil movement. While it is possible that some small areas of uninfested vegetation may exist within the areas shown to be infested on Figure 1, these areas would not be considered protectable based on the mechanics of disease movement and the extensive network of multiple human vectors.

The *Phytophthora* dieback survey of the project area included the collection of eight soil and tissue samples from Mt Adelaide/Irrerup while the survey of Mt Clarence/Condarup relied on

the presence of nine historic positive recoveries. Of the eight sample collected from Mt Adelaide/Irrerup, five returned positive results for *Phytophthora cinammomi*.

Due to the extent of disease distribution and the intensive land use across the reserves, there are no areas that can be considered to be protectable from future disease introduction and spread. Therefore any planning activities must adopt the objective of mitigating the risk of exporting potentially infested soil and tissue material away from the reserves, to external areas that may not be infested.

1 INTRODUCTION

1.1 Background

The City of Albany (CoA) is currently assessing and planning the delivery of a network of mountain bike trails within the Mount Clarence/Condarup and Mount Adelaide/Irrerup reserves. As a part of preliminary project planning, the CoA wish to determine the current distribution of *Phytophthora* dieback across the proposed project area. Accordingly, Great Southern Bio Logic was engaged by Common Ground Trails to undertake a broad scale survey across the area. Common Ground Trails have been engaged by the CoA to oversee the trails planning and development project.

1.2 Objectives

The objective of the project is to assess the extent of *Phytophthora* dieback across the project area and determine the presence and distribution of areas that may be considered to be protectable from the disease.

1.3 Scope of Works

In order to achieve the project objective, the following scope of works was undertaken:

- Completion of a detailed desktop assessment of the site involving an analysis of previous assessments, known infestations, topography, geology, land use and access.
- Completion of a field based, broad scale disease distribution survey of the project area involving:
 - A linear survey of all internal tracks and other potential vectoring infrastructure;
 - Mapping of disease hygiene boundaries using a hand held GPS; and
 - Broad scale survey of all uninfested areas to confirm the general disease free status.

The broad scale survey method is consistent with the Department of Parks and Wildlife guideline, *Phytophthora Dieback Interpreters Manual for lands managed by the Department (2015)*. The information produced using this method of survey provides planning level disease hygiene information for application across the entire site.

- Completion of a soil and tissue sampling program to verify field interpretation decisions. All samples were transported to the DPaW Vegetation Health Service (VHS) in Perth for analysis;
- Application of protectable area criteria across the project area to identify areas that can be considered protectable from future infestation by *Phytophthora* species; and
- Development of this report detailing project methodology and inclusive of figures illustrating disease distribution, protectable areas, soil and tissue sample locations.

1.4 Site Characteristics

1.4.1 Project Area

Mount Clarence/Condarup and Mount Adelaide/Irrerup (the project area) form a single area of remnant native vegetation situated immediately east of the City of Albany central business district. The project area is adjoined by residential development to the north and west while

the Port of Albany and associated industrial infrastructure adjoins much of the southern boundary. The eastern portion of the project area extends to the King George Sound high tide line as shown in Figure 1.

1.4.2 Vegetation

The vegetation across the project has been mapped in detail as a part of the Albany Regional Vegetation Survey (ARVS) (Sandiford and Barrett, 2010). The survey identifies four primary vegetation categories with multiple vegetation units within each category. The primary vegetation categories consist of:

- Granite outcrops;
- Upland Eucalypt woodland and forest;
- Coastal dune systems; and
- Wetlands and damplands.

1.4.3 Climate

The Bureau of Meteorology (BoM) broadly classifies the climate across the south west region of Western Australia as warm summers with cold winters. The BoM maintains a network of weather stations across Australia to record weather data, with the nearest station to the project area being Albany. The long term average annual rainfall data from Albany shows that that annual average rainfall is 947.6mm/yr. while the average maximum temperatures range from 15.1°C (July) to 21.9°C (Feb).

These are important figures as the accepted distribution of *Phytophthora* is generally restricted by the 400mm isohyet with distribution in the 400-600mm/yr zone further restricted to sites with high summer rainfall averages or associated with water gaining sites. Based on the BoM climate classification and rainfall data it can be seen that the survey area experiences suitable conditions for *Phytophthora* to have a significant impact.

1.4.4 Land Use

The project area is used for broad range of land use activities and has experienced a high level of land use for an extended period time. Most notably, both mounts have memorials, artefacts and development dedicated to the ANZAC heritage of the region. Recently the National ANZAC Centre and associated infrastructure has been developed across both mounts. Historical military sites including gun emplacements, bunkers and lookouts are also distributed across Mt Adelaide/Irrerup.

The area is also used extensively for recreational walking and cycling and an extensive network of both formal and informal trails traverses the project area. Access to this network can be gained from all sides through entrance points from residential areas and access roads. The CoA maintain a series of strategic firebreaks across the project area and the Water Corporation also maintains a water pipeline that leads to a storage tank situated on the flanks of Mt Clarence/Corndarup. Marine Drive traverses the eastern and southern portions of the project area, forming a major link between the CBD and Middleton beach.

2 METHOD

In accordance with the agreed project scope of works, the field survey was undertaken using a methodology referred to as a broadscale survey. The broadscale survey method is defined in the Department of Parks and Wildlife (DPaW) guideline, *Phytophthora Dieback Interpreters Manual for lands managed by the Department* (2015). A summary of key survey activities is provided below.

2.1 Desktop Interpretation

The project area was subject to an initial desktop assessment involving a review of the Vegetation Health Service (VHS) *Phytophthora* sample database, previous surveys across Mount Clarence and examination of available aerial imagery to assess:

- The known distribution of *Phytophthora* dieback on or near the subject areas;
- The distribution of site specific vectors including but not limited to roads, creek lines, gravel pits and other potentially threatening features; and
- Evidence of existing disease signatures such as areas of obvious vegetation decline.

2.2 Field Survey

The broadscale survey was undertaken by a DPaW registered disease interpreter and involved walking all known access ways to identify disease symptoms which were then extrapolated to downslope areas using the accepted mechanisms of disease spread. Potentially uninfested vegetation areas situated upslope of observed disease symptoms and positive sample recoveries were then assessed to confirm the disease status.

Field data including disease presence and vegetation information was collected using a hand held GPS unit and converted to ArcGIS™ shapefiles. Collected field data included all sample locations, a point file of all identified individual plant deaths attributed to *Phytophthora* and track files of the area covered during survey.

The survey method provides moderate confidence disease distribution information. As disease distribution is extrapolated to downslope areas which are not extensively ground truthed, there is a possibility of small uninfested areas existing on the lower slopes. Should any such areas exist they will be under imminent threat of disease spread from infested upslope areas and hence will be classified as unprotectable in accordance with the criteria defined in Section 3.

2.3 Sampling Program

The sample program incorporated the collection of soil and tissue samples from Mt Adelaide/Irrerup while historic VHS positive recoveries of *Phytophthora* were used in the assessment of Mt Clarence/Corndarup. Sampling for *Phytophthora* dieback involves the collection of soil and tissue samples from fresh deaths of plants considered to be reliable indicator species of *Phytophthora* expression. Where suspicious deaths were identified, soil and root tissue material was collected into heavy duty plastic bags and forwarded to the Department of Parks and Wildlife VHS laboratory for analysis.

All sampling undertaken during the survey period was performed in accordance with the methods described in the *Phytophthora Dieback Interpreters Manual for lands managed by the Department* (DPaW, 2015). All sampling associated with the historical positive recoveries on Mt Clarence were performed using methodologies consistent with earlier versions of the DPaW guideline.

3 ASSESSMENT CRITERIA

DPaW (2015) guidelines identify six potential disease hygiene categories based on presence/absence of the disease, or the unknown disease status of an area. An area can have an unknown disease status if the vegetation at the site is not susceptible to the disease or it cannot be assessed because of disturbance, eg fire. As a result, even if the pathogen is present, there may be no interpretable signs.

Only areas with suitable remnant native vegetation can be assessed. Areas that have been cleared or significantly altered are excluded from survey. In some cases small excluded areas may be afforded a hygiene category if they are small enough to be influenced by adjacent surveyed vegetation or situated such that topographical influences can be used to determine disease presence or absence.

The six possible disease categories are listed and described below:

1. **Infested** – Areas a registered interpreter determines to have plant disease symptoms consistent with the presence of *Phytophthora cinnamomi*.
2. **Uninfested** – Areas determined by a registered interpreter to be free of plant disease symptoms that indicate the presence of *P. cinnamomi*.
3. **Uninterpretable** – Natural, undisturbed areas where susceptible plants are absent, or are too few to make a determination of the presence or absence of *P. cinnamomi*.
4. **Temporarily uninterpretable** – Areas where disease presence or absence cannot be determined due to a level and type of site disturbance that will recover within the short to medium term, eg fire, rehabilitation.
5. **Not yet resolved** – *Phytophthora* occurrence diagnosis cannot be made because of inconsistent or incomplete evidence (including sample results). The category is only to be used in low interpretability zones (400mm to 600mm rainfall range).
6. **Disease risk roads (DRR)** – Interpreters will use the DRR category to show the disease status is unknown because of suspected or apparent recent use under unknown hygiene conditions.

Following the determination of disease categories, protectable areas are identified to determine areas that are likely to remain free from the disease with the application of appropriate disease hygiene as required.

Protectable areas are defined in the *Phytophthora Dieback Interpreters Manual for lands managed by the Department*, (DPaW, 2015) as areas that:

- Have greater than 600mm of annual rainfall or are water gaining sites in the 400mm - 600mm rainfall zone;
- Are determined to be free from *Phytophthora cinnamomi* by a DPaW registered disease interpreter;
- Are positioned in the landscape and are of sufficient size that they will not be engulfed by *Phytophthora* via autonomous spread. Such an area is defined as being greater than 4ha with a minimum axis of 100m, and not down slope of an infested area;
- Have controllable human vectors; and
- Include high conservation and/or socio economic values.

4 RESULTS AND DISCUSSION

The known disease distribution including sample locations and the location of protectable vegetation across Mt Clarence/Corndarup and Mt Adelaide/Irrerup is shown in Figure 1. Appendix A presents the VHS laboratory certificates for all samples collected during the survey of Mt Adelaide/Irrerup. Positive VHS records for Mt Clarence/Corndarup represent samples collected during previous surveys and the VHS certificates of analyses for these samples are not available for reporting, however, VHS barcode references are listed within the associated shapefile attributes if required.

4.1 Vegetation

As described in Section 1.4.2 the vegetation broadly consisted of four primary vegetation categories. As the Broadscale survey methodology relies on the extrapolation of disease distribution from upland areas down to vegetation below, the focus of the survey area was within the upland woodland and forest systems, while some areas of granite outcrop vegetation were also surveyed. The detailed descriptions of the vegetation within the project area can be found in the ARVS (Sandiford and Barrett, 2010), however, a summary of the observed vegetation types across the surveyed area is presented below.

The upland woodland and forest areas were typically dominated by an overstorey of Jarrah/Marri/Sheoak over tall open scrub, open heath, low shrubland, sedgeland or herbland. To the north of the project area the upland vegetation transitioned into Sheoak dominated woodland over an open understorey with minimal indicator species.

The surveyed areas of coastal heath can be described as a diverse open heath with large clumps of *Agonis flexuosa* with other dominant species including *Bossiaea linophylla*, *Hakea florida*, *Adenanthos cuneatus* and *Leucopogon obovatus*. To the south of Marine Drive, an elevated granite hilltop was identified as a priority survey area due to its position which isolates it from the larger catchment of Mt Adelaide. Vegetation on this low hill consisted of a granite shrubland dominated by a dense stand of *Gastrolobium bilobum*.

It is noted that the vegetation descriptions presented in the ARVS list species included *Banksia attenuata*, *B. coccinea*, *B. grandis* and *Persoonia longifolia* as common species in the secondary tree strata and shrub layers. While these species were observed across the project area they were not noted in significant numbers and dead individuals were often recorded.

The majority of the vegetation was considered to be interpretable based on a suitable density of indicator species, however, the granite shrubland south of Marine Drive was considered to be uninterpretable due to the lack of indicator species. Common indicator species found across the survey area and used to determine the presence/absence of *Phytophthora* included:

- *Banksia attenuata*
- *B. coccinea*
- *B. formosa*
- *B. grandis*
- *Jacksonia horrida*
- *Gompholobium scabrum*
- *Leucopogon obovatus*
- *Patersonia umbrosa*
- *Persoonia longifolia*
- *Xanthorrhoea gracilis*
- *X. preissii*

Other indicator species were present and identified across the survey area, however, these were used as supporting evidence only because of either low densities or through being less reliable indicator species.

4.2 Disease Expression

Disease expression varied from active disease expression with multiple indicator species deaths, often occurring in clusters, through to very subtle expression evidenced only by the presence of old deaths in amongst otherwise healthy vegetation. In some locations, particularly on the northern flanks of the project area, the vegetation was considered to be nearly uninterpretable. Occasional scattered deaths of *X. preissii* were evident through these areas and vegetation further upslope showed symptoms of active disease expression. Positive sample recoveries were located in the saddle between the two mounts, resulting in the extrapolation of disease presence across the northern slopes.

Observed indicator species deaths varied in age, with the most recent deaths situated in areas of active disease activity. *Xanthorrhoea* species and *Patersonia umbrosa* were considered to be the most reliable of the indicator species, however, the historic impact resulting from the remains of old *Banksia* species deaths was used to verify disease presence in areas with little or no fresh disease activity.

4.3 Disease Distribution and Hygiene categories

As shown in Figure 1, *Phytophthora* dieback is distributed across the entire project area, with the exclusion of the small hill to the south of Marine Drive which has been classified as uninterpretable. Much of the infested classification has been placed across the project area using the mechanics of disease spread to extrapolate disease distribution from areas of observed disease expressions and from positive sample recoveries.

The mechanics of disease spread are based on the downhill movement of the disease through drainage lines and shallow groundwater movement. Further, disease spread is known to be caused by human traffic along disease vectors including walk trails, firebreaks and other vectors for soil movement. While it is possible that some small areas of uninfested vegetation may exist within the areas shown to be infested on Figure 1, these areas would not be considered protectable based on the mechanics of disease movement and the extensive network of multiple human vectors.

4.4 Sample Program

The *Phytophthora* dieback survey of the project area included the collection of eight soil and tissue samples from Mt Adelaide/Irrerup while the survey of Mt Clarence/Corndarup relied on the presence of nine historic positive recoveries. The VHS certificate of analysis for the eight samples collected from Mt Adelaide/Irrerup is provided in Appendix A and the location and results of all current and historic samples are shown in Figure 1. Table 1 below provides a summary of all sample results.

Mt Clarence/Corndarup and Mt Adelaide/Irrerup Sample Data				
Sample Label	Easting	Northing	Result	Sample date
Mt Adelaide - S1	583475	6122888	<i>P. cinnamomi</i>	10/02/2016
Mt Adelaide – S2	583501	6123013	Negative	10/02/2016

Mt Clarence/Corndarup and Mt Adelaide/Irrerup Sample Data				
Sample Label	Easting	Northing	Result	Sample date
Mt Adelaide – S3	583750	6123121	<i>P. cinnamomi</i>	10/02/2016
Mt Adelaide – S4	583420	6123526	<i>P. cinnamomi</i>	10/02/2016
Mt Adelaide – S5	583570	6123511	Negative	10/02/2016
Mt Adelaide – S6	583453	6123153	<i>P. cinnamomi</i>	11/02/2016
Mt Adelaide – S7	583677	6123202	<i>P. cinnamomi</i>	11/02/2016
Mt Adelaide – S8	583595	6123322	Negative	11/02/2016
Mt Clarence – S2	581372	6123980	<i>P. cinnamomi</i>	7/11/2012
Mt Clarence – S5	581915	6123489	<i>P. cinnamomi</i>	7/11/2012
Mt Clarence – S6	582630	6123346	<i>P. cinnamomi</i>	14/05/203
Mt Clarence – S7	582453	6123516	<i>P. cinnamomi</i>	14/05/203
Mt Clarence – S9	582074	6123636	<i>P. cinnamomi</i>	14/05/203
Mt Clarence – S10	581418	6123822	<i>P. cinnamomi</i>	14/05/203
Mt Clarence – S11	581392	6123825	<i>P. cinnamomi</i>	14/05/203
Mt Clarence – S12	581433	6123807	<i>P. cinnamomi</i>	14/05/203
Mt Clarence – S13	581485	6123707	<i>P. cinnamomi</i>	14/05/203

Table 1: Summary of the Mount Clarence/Corndarup and Mount Adelaide/Irrerup sample results

4.5 Other Causes of Vegetation decline

Vegetation communities can be impacted by a range of pathogens, insects and also seasonal climatic variations such as rainfall and temperature. In such cases, the vegetation may exhibit symptoms of decline that are not attributable to *Phytophthora*. Across the project area several other causes of vegetation decline were noted during the survey period.

Banksia formosa was a very common indicator species in areas of Mt Adelaide/Irrerup. In some areas, this species was observed to be suffering from staggered limb death resulting in the staged death of individual plants over a period of several weeks/months. This nature of vegetation decline is often associated with aerially spread canker and is not consistent with typical impact caused by *Phytophthora cinnamomi*. Several small areas of presumed canker impact were noted on the northern and the eastern slopes of Mt Adelaide/Irrerup. Canker specimens were not collected for analysis during the present survey and there is currently no effective treatment (Colin Crane, DPAW, pers. comm).

Additional vegetation decline was noted either side of the Mt Adelaide/Irrerup circuit trail and some other smaller tracks. The extent of the impact was limited to the edge of tracks and may therefore be the result of herbicide spray during fire break maintenance activities.

5 RECOMMENDATIONS

Due to the extent of disease distribution and the intensive land use across the reserves, there are no areas that can be considered to be protectable from future disease introduction and spread. Therefore any planning activities must adopt the objective of mitigating the risk of exporting potentially infested soil and tissue material away from the reserves to external areas that may not be infested.

In order to achieve this objective the application of effective operational hygiene will need to be applied during trail development activities. Effective hygiene will require the effective cleandown of all vehicles, equipment and machinery prior to accessing protectable areas of native vegetation with un-known disease status or areas that are classified as either uninfested or uninterpretable.

In addition, trail design should consider the incorporation of educational signage and other material, raising awareness of the impacts associated with Dieback and highlighting the importance of personal and bicycle hygiene. Further trail planning considerations may include the use of cleandown infrastructure to reduce the volume of soil exported from the area on recreational bikes.

6 REFERENCES

Bureau of Meteorology (BoM) (2016): <http://www.bom.gov.au/climate/data/>

Department of Parks and Wildlife (DPaW) (2015), *Phytophthora Dieback Interpreters Manual for lands managed by the department*, Perth

Department of Environment and Conservation (CALM) (2003): *Phytophthora cinnamomi and disease caused by it, Volume 1, management guidelines*, Department of Conservation and Land Management, Perth

Sandiford E. M. and Barrett S. (2010): *Albany Regional Vegetation Survey – Extent Type and Status*, Unpublished report Department of Environment and Conservation, Western Australia.

7 LIMITATIONS

This report was prepared for Common Ground Trails, solely for the purposes set out in the scope of works and it is not intended that any other person use or rely on the contents of this report.

Whilst the information contained in the Report is accurate to the best of our knowledge and belief, Great Southern Bio Logic and its agents cannot guarantee the completeness or accuracy of any of the descriptions or conclusions based on the information supplied to it or obtained during the site investigations, site surveys, visits and interviews. Furthermore, field and / or regulatory conditions are subject to change over time, and this should be considered if this report is to be used after any significant time period after its issue.

Great Southern Bio Logic and its agents have exercised reasonable care, skill and diligence in the conduct of project activities and preparation of this report. However, except for any non-excludable statutory provision, Great Southern Bio Logic and its agents provided no warranty in relation to its services or the report, and is not liable for any loss, damage, injury or death suffered by any party (whether caused by negligence or otherwise) arising from or relating to the services or the use or otherwise of this Report.

This report must be read, copied, distributed and referred in its entirety.



Figures

***Phytophthora dieback Hygiene Survey of the proposed Mt Clarence
and Mt Adelaide Mountain Bike Trails Area***

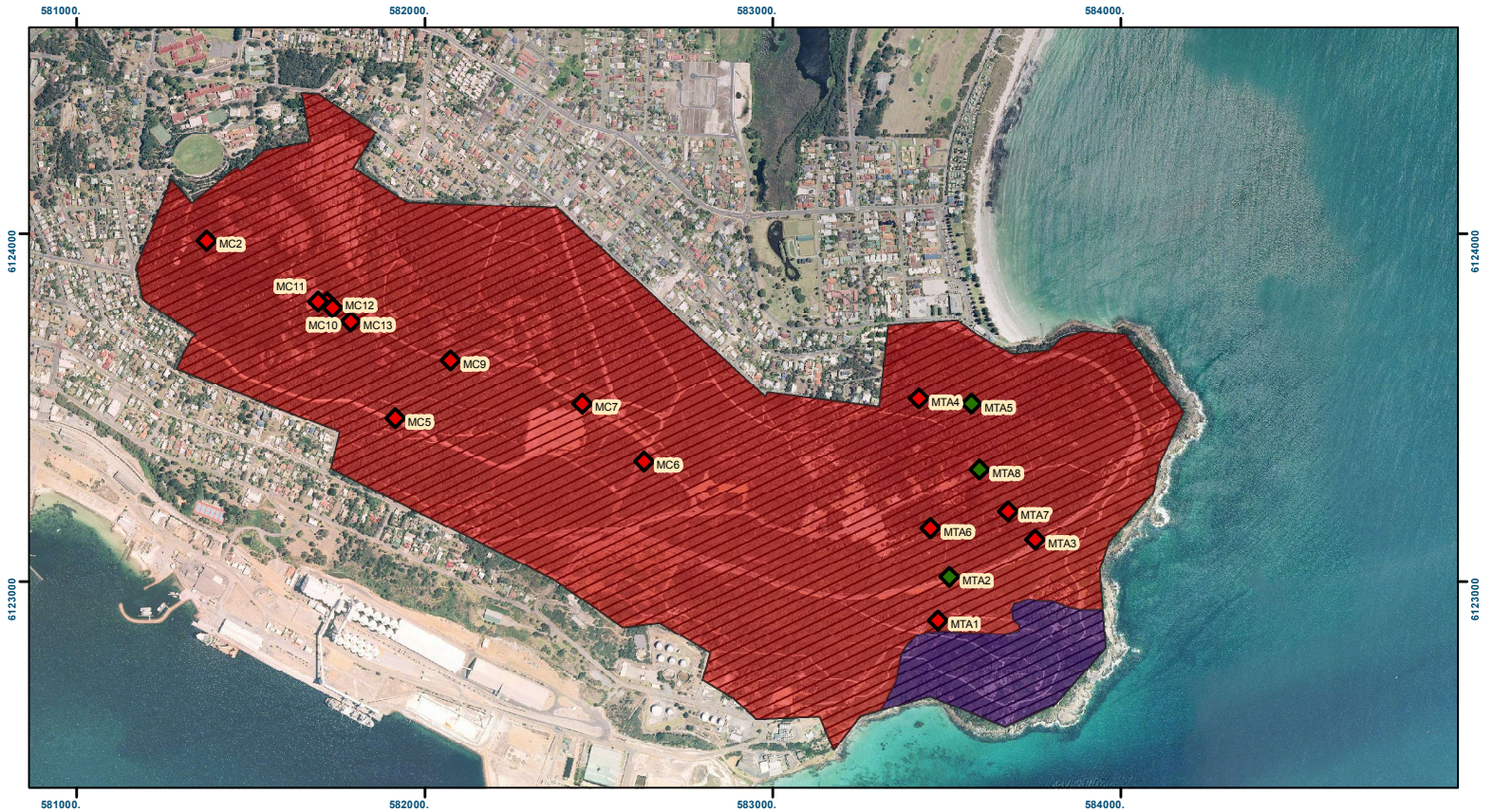


Figure 1: Disease distribution and sample locations across Mt Clarence/Corndarup and Mt Adelaide/Irrerup



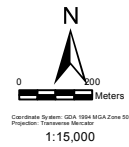
Great Southern Bio Logic does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

Ref: GSBL214
Date: 3/03/2016

Phytophthora Dieback Hygiene Survey of the proposed Mt Clarence/Corndarup and Mt Adelaide/Irrerup Mountain Bike Trails Area prepared for Common Ground Trails, March 2016

LEGEND

- | | |
|-----------------|---------------|
| STATUS | RESULT |
| Infested | Positive |
| Uninterpretable | Negative |
| Unprotectable | |





Appendix A

VHS Certificate of Analysis



Vegetation Health Service – Phytophthora sample information

FORM
FEM046

CONTACT DETAILS of sender

Name [REDACTED]
Fax N [REDACTED]
DPW Office or Company Name GS Bio Logic

Job Type (Please indicate)

Private

VHA use only

Date received 16.2.16
Date faxed 24.2.16, 29.2.16
GDA(1) GDA 94

SEND TO: Vegetation Health Service,
Ecosystem Health Branch – Dept. Parks
& Wildlife, 17 Dick Perry Ave,
KENSINGTON 6151
Phone: (08) 9334 0317
Fax: (08) 9334 0114

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)
VHS34162 	10-02-16	Mt Adelaide Sample 1	<i>B. coccinea</i>	M	50	E 583475 N 6122888	R		CIN
VHS34163 	10-02-16	Mt Adelaide Sample 2	<i>B. formosa</i>	M	50	E 583501 N 6123013	R		NEG
VHS34164 	10-02-16	Mt Adelaide Sample 3	<i>B. formosa</i>	M	50	E 583750 N 6123121	R		CIN
VHS34165 	10-02-16	Mt Adelaide Sample 4	<i>X. platyphylla</i>	M	50	E 583420 N 6123526	R		CIN
VHS34166 	10-02-16	Mt Adelaide Sample 5	<i>B. formosa</i>	M	50	E 583570 N 6123511	R		NEG
VHS34167 	11-02-16	Mt Adelaide Sample 6	<i>X. platyphylla</i>	M	50	E 583453 N 6123153	R		CIN
VHS34168 	11-02-16	Mt Adelaide Sample 7	<i>B. grandis</i>	M	50	E 583677 N 6123202	R		CIN
VHS34169 	11-02-16	Mt Adelaide Sample 8	<i>B. formosa</i>	M	50	E 583595 N 6123322	R		NEG

NOTES:

- Please tick this box if your map references are supplied in the GDA 94 standard. If not, please specify the datum used.
- Site impact - Low, Moderate, or High (as in the Dieback Interpreter's Manual).
- An MGA map reference with prefixes **must** be supplied for all samples.
- Land tenure - State Forest (SF), National Park (NP), Reserve (R), Westrail (W), Private (P), Gravel Pit (GP), or other. (Other - describe in comments below).
- Result codes used - CIN = *Phytophthora cinnamomi*, MUL = *P. multivora*, CRY = *P. cryptogea*, PI = *P. inundata*, ARE = *P. arenaria*, ELO = *P. elongata*, THE = *P. thermophila*, PM = *P. megasperma*, PN = *P. nicotianae*, CON = *P. constricta*, NEG = negative, SUB = subcultured for further tests

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 and map products, which may be made available to the public and third parties to be used for research and other purposes.

COMMENTS: