



**JANDAKOT AIRPORT
WEED MANAGEMENT PLAN**

**CONSERVATION MANAGEMENT PLAN
APPENDIX B**

Jandakot Airport Holdings Pty Ltd
16 Eagle Drive
Jandakot WA 6164

Amendment History

Version	Issue Date	Description	Prepared By	Approved By (JAH)	Approved by (DOEE)
12	11/06/2011	Major revision	Joanne Wann (JAH EM)	J. Fraser	
13	22/01/2014	Major revision	Joanne Wann (JAH EM)	J. Fraser	S.Gaddes 8/4/14
14	03/06/2019	Minor amendments to reflect updated mapping.	Joanne Wann (JAH EM)	J. Fraser	TBC

TABLE OF CONTENTS

1	INTRODUCTION	3
2	WEED SPECIES AND PRIORITY TARGETS FOR CONTROL.....	3
3	WEED CONTROL	5
3.1	Weed Control Program.....	5
4	MANAGEMENT AND RECORDING OF WEED CONTROL ACTIVITIES	6
5	MONITORING REGIMES AND SURVEY METHODS.....	6
5.1	Weed and Bushland Condition Surveys.....	6
5.2	Weed Monitoring Quadrats.....	7
5.3	Informal Weed Inspections	8
6	<i>PHYTOPHTHORA CINNAMOMI</i> DIEBACK CONTROL.....	8
7	REHABILITATION AND REVEGETATION GUIDELINES.....	8
8	THRESHOLDS FOR TRIGGERING FURTHER MANAGEMENT INTERVENTION.....	9
9	REPORTING REQUIREMENTS	10
10	REVIEW AND AMENDMENT OF WEED MANAGEMENT PLAN.....	10
11	SUMMARY OF ACTIONS	11
12	REFERENCES.....	13
13	GLOSSARY.....	14

FIGURES

FIGURE 1	WEED GRID POINT LOCATIONS 2011
FIGURE 2	BUSHLAND CONDITION MAPPING 2011
FIGURE 3	WEED GRID POINT LOCATIONS 2016
FIGURE 4	BUSHLAND CONDITION MAPPING 2016
FIGURE 5	GRID SURVEY BUSHLAND CONDITION 2011-2016
FIGURE 6	WEED MONITORING QUADRAT LOCATIONS 2016
FIGURE 7	QUADRAT MONITORING – BUSHLAND CONDITION 2011-2017
FIGURE 8	QUADRAT MONITORING – SPECIES RICHNESS 2011-2017

ATTACHMENTS

ATTACHMENT A	WEED CONTROL PROGRAM
ATTACHMENT B	WEED CONTROL RECORD SHEET

1 Introduction

All methods of weed control (chemical, physical, or biological) need to be considered for their application at Jandakot Airport. Ecological considerations place constraints on weed control because side-effects, such as those on native plants or habitat, may rule out the use of some techniques. There are also financial constraints on the amount of weed control that can be carried out.

Guidance for weed management at Jandakot Airport is provided by various sources including consultants, weed contractors and resources provided by the Department of Biodiversity, Conservation and Attractions (DBCA). This plan is consistent with the Jandakot Airport Master Plan 2014.

In determining weed control JAH considers the following matters:

- Recognition of weed potential (invasiveness, distribution and environmental impact)
- Maintaining areas that have vegetation in good condition as a priority
- Control of weeds that impact on significant species and threatened species and communities as a priority
- Opportunity to eradicate weed species whilst population size is low or has limited distribution.

It is at times important to discuss weed control with leaseholders and neighbours to enable a more coordinated effort of weed control to be implemented. The planting of non-local plant species within Jandakot Airport is discouraged and JAH promote the planting of local species in landscape areas consistent with the Jandakot Airport Landscape Design Guidelines.

Previous versions of this Weed Management Plan contained details of monitoring regimes and management actions directly related to rehabilitation requirements detailed in the Jandakot Airport Offset Plan (March 2010) associated with the rehabilitation of Precincts 7 and 8. As subsequent decisions have resulted in alternative offsets being approved (refer EPBC Referral 2009/4796), relevant details have been removed from this version of the Weed Management Plan.

2 Weed Species and Priority Targets for Control

A comprehensive baseline weed survey was undertaken in 2011 to provide grid point based weed mapping and to assess the bushland condition of the vegetation (Ecoscape 2011) (Figures 1 and 2). The survey resulted in an initial target species list. That list, along other weed species identified during the 2012 – 2015 annual quadrat surveys, was reviewed by Ecoscape prior to the repetition of the Weed and Bushland Condition survey in 2016 to determine if any modification or addition to the target species list was required. The results of this review are shown in Table 1. This list should be used for all future surveys. The review determined a species priority by considering that species rating/listing under the following:

- the Department of Environment and Conservation (DEC 2008) *Environmental Weed Census and Prioritisation* (EWCP)
- the *Invasive Plant Prioritization Process for DEC* listings for the Swan DPaW region (DPaW 2013)
- Declared Plants listed under the *Agriculture and Related Resources Protection Act 1976* (now replaced by the *Biosecurity and Agriculture Management Act 2007, BAM Act that was enacted in 2013; plants now known as Declared Pest plants*)
- Weeds Australia 2008 *Weeds of National Significance* (WONS) (Australian Government 2016).

Table 1. Revised Target Weed Species List (Ecoscape 2016).

Primary/ Secondary	Scientific Name	Common Name	EWCP	DPaW Priority	WONS	BAM	Action
Primary	<i>Acacia longifolia</i>	Sydney Golden Wattle	Very High	High	No	Permitted	Added
	<i>Asparagus asparagoides</i>	Bridal Creeper	Very High	Low	Yes	C3	Retained
	<i>Brassica tournefortii</i>	Wild Turnip	High	Low	No	Permitted	Retained
	<i>Echium plantagineum</i>	Patersons Curse	High	Low	No	Permitted (in City of Canning)	Retained- however no longer a Declared Pest
	<i>Ehrharta calycina</i>	Perennial Veldt Grass	Very High	Low	No	Permitted	Retained
	<i>Freesia alba x leichtlinii</i>	Freesia	Very High	Low	No	Permitted	Retained
	<i>Leptospermum laevigatum</i>	Victorian Tea Tree	Very High	High	No	Permitted	Retained
	<i>Pelargonium capitatum</i>	Rose Pelargonium	Moderate / High	Low	No	Permitted	Retained
	<i>Watsonia sp.</i>	Watsonia	Moderate	High	No	Permitted	Retained
	<i>Zantedeschia aethiopica</i>	Arum Lily	Very High	Moderate	No	C3	Retained
Secondary	<i>Asphodelus fistulosus</i>	Wild Onion	FAR	Low	No	Permitted	Retained
	<i>Avena barbata</i>	Bearded Oat	Very High	Low	No	Permitted	Reinstated
	<i>Bromus diandrus</i>	Great Brome	Very High	Low	No	Permitted	Retained
	<i>Chamelaucium uncinatum</i>	Geraldton Wax	Moderate	Low	No	Permitted	Retained
	<i>Cynodon dactylon</i>	Couch	Very High	Low	No	Permitted	Retained
	<i>Ehrharta longiflora</i>	Annual Veldgrass	FAR	Low	No	Permitted	Retained
	<i>Euphorbia peplus</i>	Petty Spurge	High	Negligible	No	Permitted	Retained
	<i>Euphorbia terracina</i>	Geraldton Carnation Weed	Very High	Moderate	No	Permitted	Retained
	<i>Fumaria capreolata</i>	Whiteflower Fumitory	Moderate / High	Low	No	Permitted	Retained
	<i>Gladiolus caryophyllaceus</i>	Wild Gladiolus	FAR / High	Moderate	No	Permitted	Retained
	<i>Hordeum leporinum</i>	Barley Grass	High	Negligible	No	Permitted	Retained
	<i>Hypochaeris glabra/radicata</i>	Flatweeds	High	Low	No	Permitted	Removed- low risk of invading bushland
	<i>Lagurus ovatus</i>	Hares Tail Grass	High	Low	No	Permitted	Retained
	<i>Oxalis pes-caprae</i>	Soursob	High	Low	No	Permitted	Retained
<i>Romulea rosea</i>	Guildford Grass	FAR	Negligible	No	Permitted	Removed- low risk of invading bushland	

3 Weed Control

Weed control is an ongoing management requirement. The potential for weeds to regrow after weed removal strategies have been implemented is particularly high within urban areas. This Weed Management Plan assists with prioritising responses to the control of weeds based on the threat posed by each population. It also addresses:

- Documentation of weed control actions
- Establishing performance criteria
- Determining a monitoring regime
- Contingencies for where monitoring indicates performance criteria are not being met.

The recommended approach is therefore to control weeds as required on an on-going basis by spraying and/or removal. The eventual eradication of certain weed species is possible if a long term approach is taken.

A target of a maximum of 20% weed cover is considered appropriate considering the location of the sites (surrounded by urban development and infrastructure). With these factors taken into consideration it will be impossible to eliminate weeds altogether, and therefore a more realistic goal is to manage them in a way that they are not going to impede the establishment and growth of native species.

This target is based on the most current, available scientific information and does not pertain to any specific legislative requirement. It is a target which should be reached in order to ensure the optimum outcome is received for the property, from a visual amenity as well as an ecological perspective.

3.1 Weed Control Program

The Weed Control Program (Attachment A) identifies the weed species and their priorities for treatment. The list of species and the priorities assigned to each species resulted from the 2016 Weed and Bushland Condition Survey (Ecoscape 2017). Ecoscape recommended that all other target weed species should be controlled as resources allow and during control works targeting the listed priority species.

Areas of 'Degraded' bushland condition (i.e. >20% weed cover) will be targeted for weed control as a priority, followed by weed species within all other bushland areas to be treated according to their treatment priority as detailed in Attachment A.

The Weed Control Program is a 'live' document and as such will require regular review and amendment in order to meet practical requirements on site as changing circumstances demand (e.g. following identification of a new weed species, following a weed monitoring/survey event, after formal changes in weed risk ratings etc.).

Weed contractors (or JAH staff) implementing the weed control program will utilise the following to ensure the program is targeted and effective:

- Existing weed maps such as those produced within the most recent five-yearly weed and bushland condition survey report
- Local knowledge (either first hand or sourced from others such as the JAH EM) as to the location of target weed species not previously mapped
- Systematic search in areas/habitat where target species are likely to occur (e.g. Arum lily is likely to be present low-lying melaleuca damplands).

4 Management and recording of Weed Control Activities

The JAH Environment Manager is responsible for maintenance of a Weed Register, where records relating to weed control activities are recorded. Maintenance of such information is essential in order to be able to assess the effectiveness of weed control measures that have been employed.

All personnel (whether site staff or contractors) undertaking weed control activities within the Jandakot Airport Conservation Precincts are required to complete Weed Control Record Sheets (see Attachment B) or similar documented evidence and submit to the JAH Environment Manager.

5 Monitoring Regimes and Survey Methods

5.1 Weed and Bushland Condition Surveys

Condition, in an environmental context, is a rating given to vegetation to categorise disturbance related to human activities. This rating refers to the degree of change in the structure, density and species present in vegetation in relation to undisturbed vegetation of the same type. The most widely used condition system is that defined by Keighery (1994) (DER 2014).

In addition to targeted weed surveys, assessment of Bushland Condition is method of determining whether weed management regimes have been effective. As well as confirming the abundance of weeds within conservation precincts, it provides assurances that habitats required by significant fauna are being adequately maintained. A Bushland Condition Scale has been modified by Ecoscape (2011, 2017) to ensure areas that exceed the 20% weed cover trigger are readily identified (see Table 2).

A detailed weed mapping and Bushland Condition survey will be undertaken every five years by experienced botanical consultants. These surveys will essentially replicate that undertaken by Ecoscape in 2011 and 2016 (Ecoscape 2011, 2017), allowing for changes in distribution and abundance across the Conservation Precincts to be assessed. The methodology for the surveys will include:

- Location of the established grid-based monitoring points (established at 100m spacing, Ecoscape 2011) by handheld Global positioning System (GPS)
- Assessment (within a 30m radius of each grid point) of Bushland Condition rating (using modified Keighery (1994) scale as shown in Table 2. Where bushland condition is Degraded, the consultant's report will include discussion on the likely cause of the rating (e.g. dieback, a specific weed etc.), thus enabling targeted action to be taken in order to increase the rating to Good or above.
- Assessment (within a 30m radius of each grid point) of cover/abundance (estimated using an adapted Braun-Blanquet scale) of target weed species
- Opportunistically record populations of target weed species occurring between grid points and significant populations of non-target weeds, as well as significant disturbances to bushland, degrading factors and sources of weed invasion.

Ultimately, these surveys will determine the effectiveness of the existing Weed Control Program, and provide results and recommendations for ongoing weed management.

The 2016 Bushland Condition survey found that overall the bushland within Jandakot Airport continues to be of very high quality with the vast majority of the area in Excellent or Very Good condition (Figure 3 and 4). No statistically significant changes were detected in condition across the study area between the 2011 and 2016 monitoring surveys (Figure 5). There was no statistical difference in the mean species richness per grid point between 2011 and 2016.

Table 2. Modified Bushland Condition Scale for Jandakot Airport.

Keighery 1994 Condition Scale	Kaesehagen 1995 Condition Scale	Modified Keighery Condition Scale for Jandakot Airport
Pristine No obvious signs of disturbance	Very Good – Excellent <ul style="list-style-type: none"> 80 – 100% Native Flora composition Vegetation structure intact or nearly so Cover/abundance of weeds less than 5% Minor signs of disturbance 	Pristine No obvious signs of disturbance 100% Native Flora composition No cover/abundance of weeds
Excellent Vegetation structure intact, disturbance only affecting individual species and weeds are non-aggressive species		Excellent Vegetation structure intact, disturbance only affecting individual species and weeds are non-aggressive species 80 – 100% Native Flora composition Cover/abundance of weeds less than 5%
Very Good Vegetation structure altered, obvious signs of disturbance e.g: repeated fires, aggressive weeds, dieback, logging and grazing.	Fair – Good <ul style="list-style-type: none"> 50 – 80% Native Flora composition Vegetation structure modified or nearly so Cover/abundance of weeds 5 – 20% Disturbance influence moderate 	Very Good Vegetation structure altered, obvious signs of disturbance eg: repeated fires, aggressive weeds, dieback, logging and grazing. 50 – 80% Native Flora composition Cover/abundance of weeds 5 – 20%
Good Vegetation structure altered, obvious signs of disturbance. Retains basic vegetation structure or ability to regenerate it. The presence of very aggressive weeds at high density, partial clearing, dieback, logging and grazing.		Good Vegetation structure altered, obvious signs of disturbance. Retains basic vegetation structure or ability to regenerate it. The presence of very aggressive weeds at high density, partial clearing, dieback, logging and grazing. 50 – 80% Native Flora composition Cover/abundance of weeds 5 – 20%
Degraded Basic vegetation structure severely impacted by disturbance. Requires intensive management. The presence of very aggressive weeds at high density, partial clearing, dieback, logging and grazing.	Poor <ul style="list-style-type: none"> 20 – 50% Native Flora composition Vegetation structure completely modified Cover/abundance of weeds 20 – 60% Disturbance incidence high 	Degraded Basic vegetation structure severely impacted by disturbance. Requires intensive management. The presence of very aggressive weeds at high density, partial clearing, dieback, logging and grazing. 20 – 50% Native Flora composition Cover/abundance of weeds 20 – 60%
Completely Degraded Vegetation structure is no longer intact and the area is completely or almost completely without native flora. 'Parkland Cleared'.	Very Poor <ul style="list-style-type: none"> 0 – 20% Native Flora composition Vegetation structure disappeared Cover/abundance of weeds 60 – 100% Disturbance incidence very high 	Completely Degraded Vegetation structure is no longer intact and the area is completely or almost completely without native flora. 'Parkland Cleared'. Cover/abundance of weeds 60 – 100% 0 – 20% Native Flora composition

5.2 Weed Monitoring Quadrats

Weed monitoring quadrats (10m x 10m) were established in the Jandakot Airport Conservation Precincts in 2011 so that the success of the weed control methods can be easily assessed annually between the more detailed five-yearly weed and bushland condition surveys. Quadrats were established in areas adjacent to disturbance (e.g. near tracks or the edges of bushland), where any impacts from new weed infestations would likely be initially observed, thus allowing for appropriate management to occur in order to mitigate impacts on the wider bushland precinct(s). Quadrats that were within Precinct 6 prior to it being cleared were relocated in 2014 into Precinct 1B, 2A and 2B (Figure 6).

The timing of monitoring is seasonally dependent and will be determined by the bushland weed experts engaged to undertake the task. The methodology for quadrat surveys will include:

- Bushland Condition rating (using modified Keighery (1994) scale as shown in Table 2)
- Presence of any weed species and their cover/abundance (estimated using an adapted Braun-Blanquet scale)
- A representative photo of the NW corner facing SE.

The percentage of quadrats in each recorded condition class for each annual monitoring period since the 2011 baseline survey is shown in Figure 7. Results show an overall improvement over time, with all quadrats from 2013 onwards being in Very Good or Excellent condition. Mean weed species richness per quadrat from 2011-2017 is shown in Figure 8. Noting that many factors, particularly rainfall, influence species richness from year to year, the trend is relatively stable.

The quadrats will continue to be monitored annually. The future ongoing frequency of weed quadrat monitoring will be guided by the results and recommendations reported within the annual weed quadrat monitoring reports by bushland weed experts, noting that any amendment to the frequency of quadrat monitoring will require amendment and DoEE approval of the Weed Management Plan.

5.3 Informal Weed Inspections

The exact timing for seasonal weed control for particular species can vary from year to year and is dependent on factors such as temperature and rainfall. The JAH Environment Manager will undertake regular informal inspections of the weed populations within Conservation Precincts to ensure that:

- Weed control contractors (or JAH staff) are engaged to undertake work at the appropriate time for the species being targeted
- The priority areas, as identified in previous weed surveys, contain the target weed species
- Any new species (or an existing species in a new location) not identified in previous weed surveys can be assessed and included in the annual weed control program if warranted.

These weed inspections are informal and are often undertaken opportunistically during general site inspections and whilst undertaking other works within Conservation Precincts. Such inspections serve only to assist in the preliminary planning requirements of the annual weed control programme, and as such there is no requirement to document these inspections.

6 *Phytophthora cinnamomi* Dieback Control

A Dieback Management Plan has been prepared for Jandakot Airport in accordance with the airport's Environment Strategy and forms a component (i.e. Appendix C) of the Jandakot Airport Conservation Management Plan. For this reason issues associated with dieback and its management are not covered in this document.

7 Rehabilitation and Revegetation Guidelines

The need to undertake rehabilitation or revegetation within the Conservation Precincts of Jandakot Airport can be triggered by the impact of weeds as well as other factors such as bushfires and dieback impacts.

To date, no areas within the Jandakot Airport Conservation Precincts have been identified as requiring rehabilitation or revegetation. However, in the event that revegetation is required to be undertaken at some future point, the Rehabilitation and Revegetation Guidelines (Conservation Management Plan Appendix D) have been developed to assist in planning. As the rehabilitation and revegetation requirements of a specific area will be determined by many factors, including the vegetation community in which works are to occur and the cause of the vegetation condition loss (e.g. weeds, dieback, bushfire etc.), it is not possible to develop a site-specific revegetation plan in advance.

8 Thresholds for Triggering Further Management Intervention

8.1 Weeds

JAH will retain the following goals, initially established in 2011, for outcomes of weed control activities within the Conservation Precincts at Jandakot Airport:

- A target of no more than 20% weed cover is considered appropriate considering the location of the precincts (surrounded by urban development and infrastructure). This equates to a maintaining a bushland condition value of 'Good' or above (see Figure 2).
- Stable or declining species richness/weed diversity.

These standards are based on the most current, available scientific information and do not pertain to any specific legislative requirement.

If monitoring results indicate that weed cover is reaching densities above 20%, or species richness (i.e. number of weeds species at a particular location) has increased significantly, weed spraying (or other relevant weed control method) will be undertaken in the weed control window following the monitoring event (noting that the period in which weed control is undertaken is dependent on both the species and the control method employed).

8.2 Bushland Condition

If Bushland Condition is assessed as being below "Good", further management intervention is required.

Where a consultant assesses the condition at monitoring points as "Degraded" or "Completely Degraded", the resulting consultant's report will include explanation as to the factors contributing to the condition.

Where a consultant assesses a significant decline in Bushland Condition across the study area (as determined via statistical scientific analysis), monitoring will be amended to either:

- (a) include degraded grid point locations within annual quadrat monitoring program in order to more closely monitor the effects of targeted management measures; or
- (b) increase the frequency of the Bushland Condition survey (frequency will be determined by the consultant and appropriate to the survey results).

Where Annual Quadrat Monitoring or Triennial Dieback Assessment identifies significant unexpected detrimental changes (as determined via the consultant's scientific analysis), then Bushland Condition assessment of the impacted area will be undertaken within 12 months of the impact being reported.

Where areas assessed as Degraded show further decline in a subsequent 5-yearly Bushland Condition survey despite targeted weed and dieback management measures, revegetation/rehabilitation measures, consistent with Bushland Rehabilitation and Revegetation Guidelines (Appendix D) will be implemented.

9 Reporting Requirements

Reporting against actions described in this plan will be included within the Jandakot Airport Annual Environment Report (AER). In line with the *Airports (Environment Protection) Regulations 1997*, the AER will be submitted to the Department of Infrastructure, Regional Development and Cities (DIRDC) by 28th October each year. A copy of the report will be provided to the Department of the Environment and Energy (DOEE) by 28th October each year.

10 Review and Amendment of Weed Management Plan

As with the overarching Conservation Management Plan, the Weed Management Plan will require regular review and amendment in order to meet practical requirements on site as changing circumstances demand.

Once amended, the Weed Management Plan will be submitted to DoEE for the Minister's approval (ref Conditions 6 and 12 of EPBC 2009/4796 approval). The approved management plan will be implemented.

The Weed Management Plan will undergo a comprehensive review every 5 years. The next comprehensive review will be undertaken in 2023, however it may be reviewed earlier if required following approval of Master Plan 2019.

11 Summary of Actions

The Table below contains a list of summary actions relating to the Jandakot Airport Weed Management Plan.

Table 3. Weed Management Plan Summary of Actions.			
Action		Responsibility	Timing
Weed Control			
WMP1	Undertake targeted weed control in line with the Weed Control Program Attachment A.	JAH EM	Annually
WMP2	For Action WMP1 above, areas defined as Degraded or below will be treated as a priority over other areas.	JAH EM	Annually
WMP3	Maintain a Register documenting details of weed control undertaken.	JAH	Annually
Monitoring			
WMP4	Undertake Weed and Bushland Condition Survey and update mapping every 5 years (refer also CMP1).	JAH EM	2021
WMP5	Where a consultant assesses a significant decline in Bushland Condition across the study area (as determined via statistical scientific analysis), monitoring will be amended to: (a) include degraded grid point locations within annual quadrat monitoring program; or (b) increase the frequency of the Bushland Condition survey (frequency to be determined by the consultant and appropriate to the survey results).	JAH EM	To be determined by the consultant undertaking Bushland Condition assessment.
WMP6	Where areas assessed as Degraded show further decline in a subsequent 5-yearly Bushland Condition survey despite targeted weed and dieback management measures, revegetation/rehabilitation measures, consistent with Bushland Rehabilitation and Revegetation Guidelines (Appendix D) will be implemented.	JAH EM	Revegetation Plan (including specific actions/timing) to be developed within 12 months of further decline being identified within Bushland Condition Report.
WMP7	Undertake Weed Quadrat Monitoring.	JAH EM	Spring Annually
WMP8	Update Bushland Condition mapping (targeting impacted areas) if significant unexpected detrimental changes are noted in annual weed quadrat surveys or triennial dieback assessments	JAH EM	Within 12 months of the impact being reported.

Table 3. Weed Management Plan Summary of Actions.

Action		Responsibility	Timing
	(refer also CMP2).		
Reporting Requirements			
WMP9	Report against actions of the WMP within the Jandakot Airport Annual Environment Report (AER) and provide copies to DIRDC and DOEE.	JAH EM	28 October Annually
WMP10	Report against actions of the WMP within an Annual Compliance Report (ref Condition 16 of EPBC 2009/4796) and publish on the JAH website.	JAH EM	28 October Annually.
Review and Amendment of WMP			
WMP11	Review and amend the Weed Control Program (Attachment A) following completion of the 2021 weed and bushland condition survey and mapping.	JAH EM	2022 or earlier if required (based on monitoring results, identification of new species, formal changes in weed risk status, opportunistic observations etc.)
WMP12	Update and revise the existing Environmental Weed Management Plan.	JAH EM	2023

12 References

Australian Government. 2016. *Weeds of National Significance*. Available from: <http://www.environment.gov.au/biodiversity/invasive/weeds/weeds/lists/wons.html>.

Department of Environment and Conservation. 2008. *Environmental Weed Census and Prioritisation*. Available from: https://www.dpaw.wa.gov.au/images/documents/conservation-management/off-road-conservation/urban-nature/reports/swan_environmental_weed_assessment_2008_summary.pdf.

Department of Environment Regulation (2014). *A guide to the assessment of applications to clear native vegetation*. Department of Environment Regulation, December 2014.

Department of Parks and Wildlife. 2013. *Invasive Plant Prioritisation Process; Swan Rankings Summary*. Available from: <http://www.dpaw.wa.gov.au/plants-and-animals/plants/weeds/156-how-does-dpaw-manage-weeds>.

Ecoscape (2011). *Jandakot Airport Weed Assessment and Bushland Condition*. Prepared for Jandakot Airport Holdings Pty Ltd.

Ecoscape (2017). *Jandakot Airport Weed Survey and Bushland Condition Assessment*. Unpublished report Prepared for Jandakot Airport Holdings Pty Ltd.

Ecoscape (2018). *Jandakot Airport – 2017 Weed Monitoring*. Unpublished report Prepared for Jandakot Airport Holdings Pty Ltd.

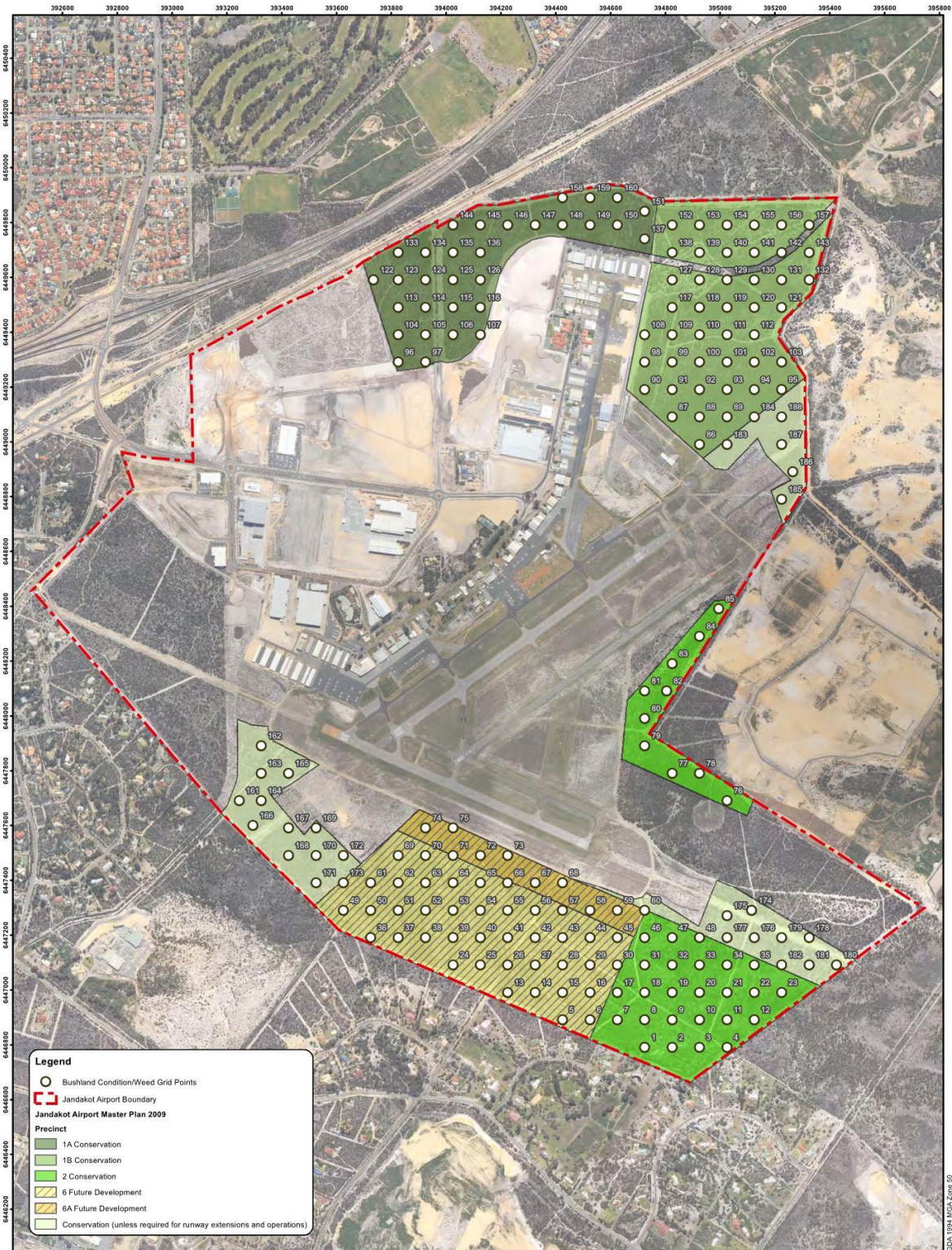
Government of Western Australia. *Agriculture and Related Resources Protection Act 1976*.

Government of Western Australia. *Biosecurity and Agriculture Management Act 2007*.

13 Glossary.

AER	Annual Environment Report
ARRPA	Agricultural and Related Resources Protection Act
CALM	Department of Conservation and Land Management (now known as DBCA)
CMP	Conservation Management Plan
DEC	Department of Environment and Conservation. On 1 July 2013 the Department of Environment and Conservation will be separated into two agencies, the Department of Parks and Wildlife (DPAW – now DBCA) and the Department of Environment Regulation (DER – now DWER).
DAFWA	Department of Agriculture and Food Western Australia
DBCA	Department of Biodiversity, Conservation and Attractions (Formerly DPAW, DEC and CALM).
DEWHA	Department of Environment, Water, Heritage and the Arts (now DOEE)
DIRDC	Department of Infrastructure, Regional Development and Cities (DIRDC, previously DIT)
DIT	Department of Infrastructure and Transport (now DIRDC)
DOE	Department of the Environment (previously DEWHA and DSEWPaC)
DPAW	Department of Parks and Wildlife (formerly DEC). On 1 July 2017 DPAW was merged with three other Departments to become DBCA.
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Previously DEWHA and now DOEE)
EPBC	Environmental Protection and Biodiversity Conservation Act 1999
EWCP	Environmental Weed Census and Prioritisation
EWSWA	Environmental Weed Strategy of Western Australia
JAH	Jandakot Airport Holdings
JAH EM	Jandakot Airport Holdings Environment Manager
WONS	Weeds of National Significance
WMP	Weed Management Plan

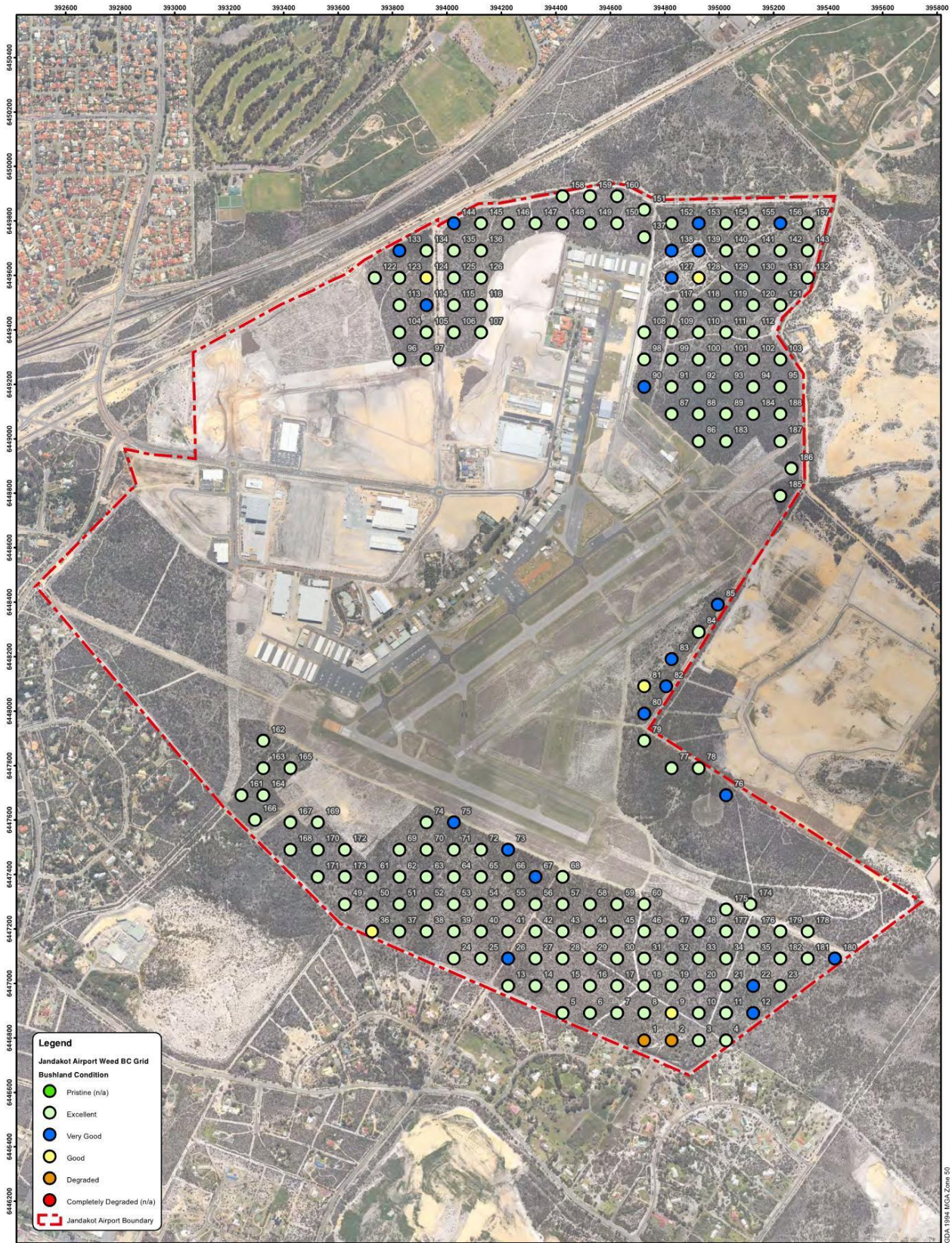
FIGURE 1. WEED GRID POINT LOCATIONS 2011



Oct 2011
 prepared for Jandakot Airport Holdings
 1:12,000 @ A3
 Project No. 2701-11



FIGURE 2. BUSHLAND CONDITION MAPPING 2011



Map 3 Jandakot Weed and Bushland Condition Survey
Bushland Condition
 Sep 2011
 prepared for Jandakot Airport Holdings
 0 100 200 300 400 500 Metres
 1:12,000 @ A3
 Project No. 2701-11



FIGURE 3. WEED GRID POINT LOCATIONS 2016

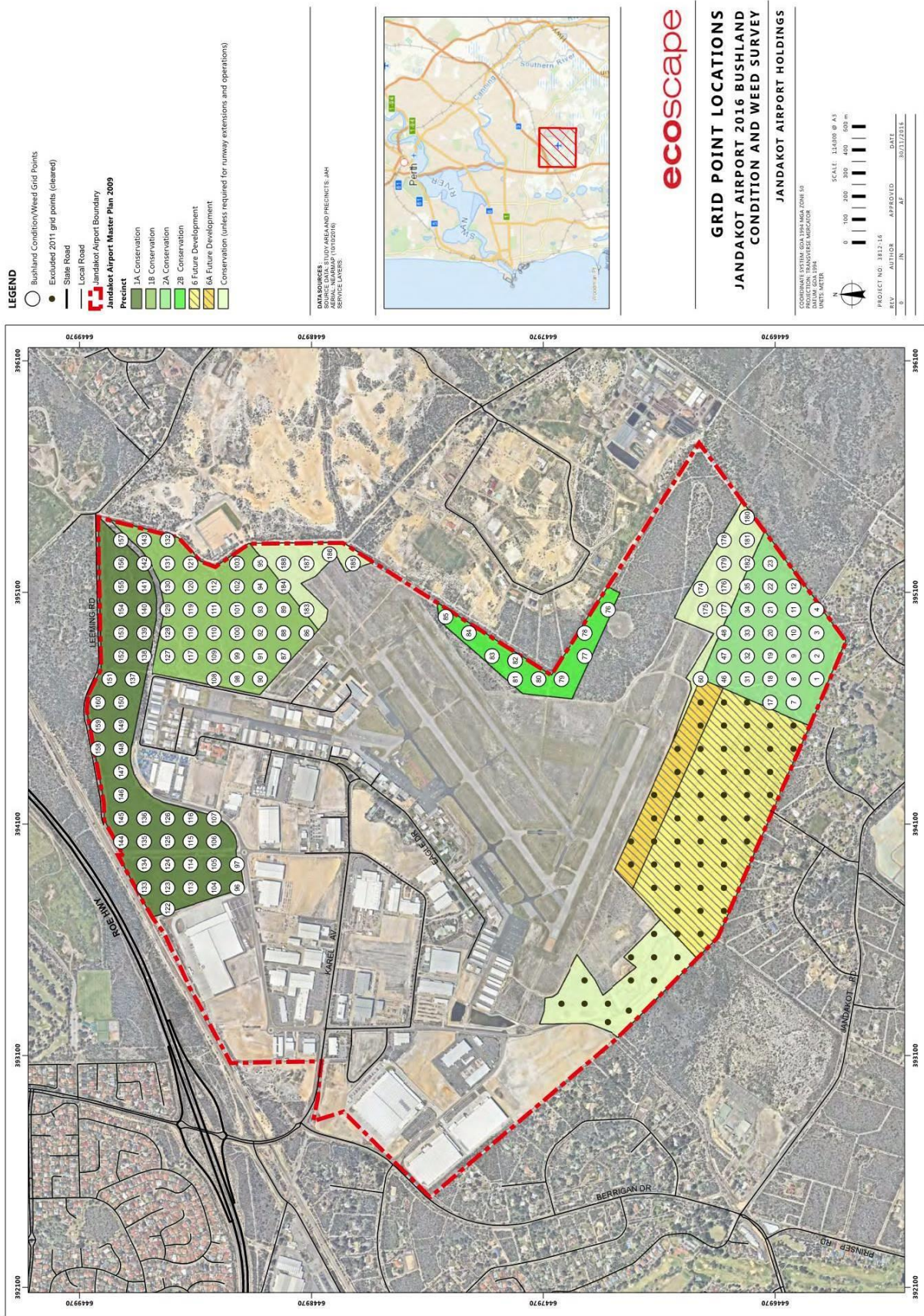


FIGURE 4. BUSHLAND CONDITION MAPPING 2016

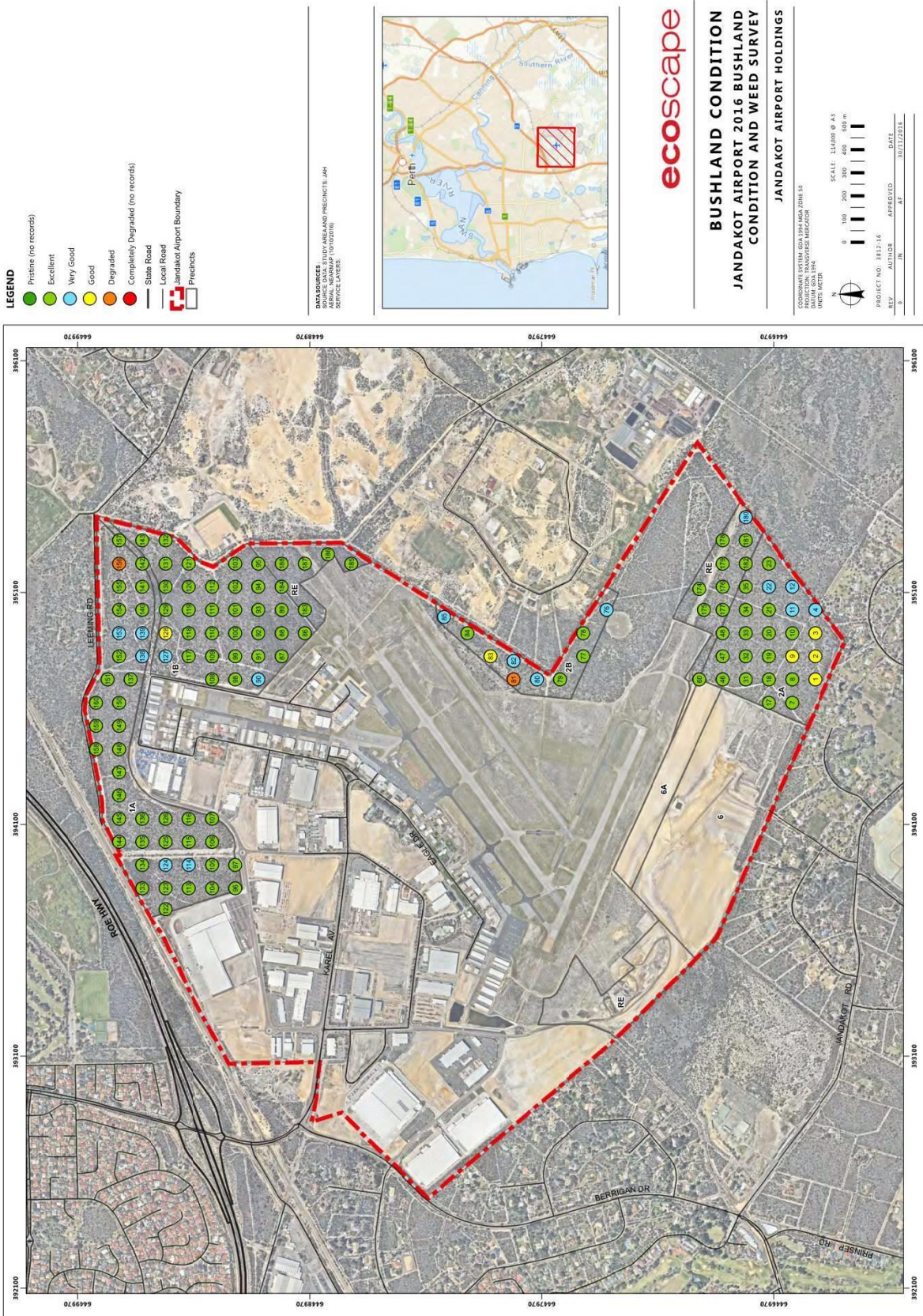


Figure 5. Grid Survey – Bushland Condition 2011-2016



FIGURE 6. WEED MONITORING QUADRAT LOCATIONS 2016

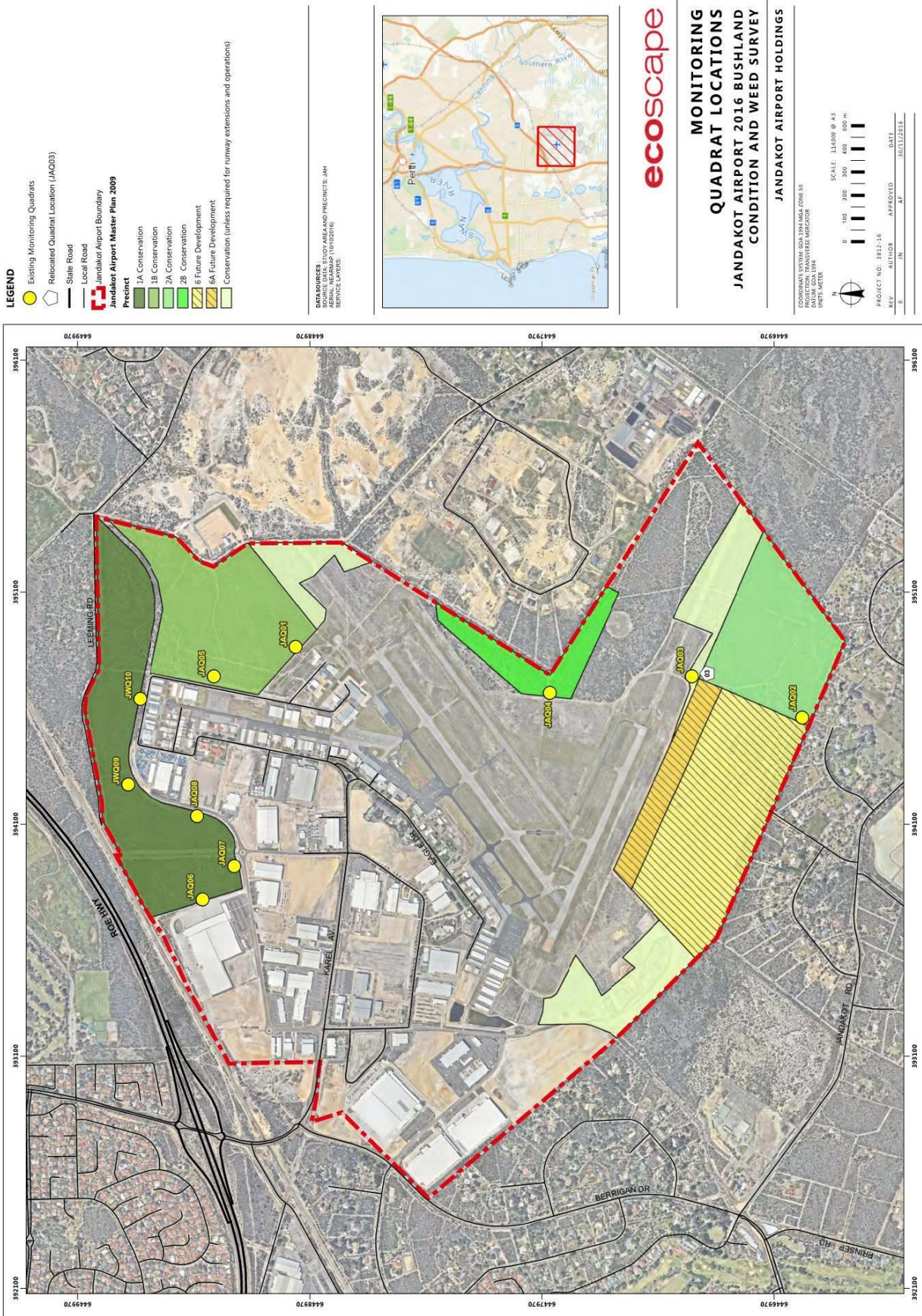


Figure 7. Quadrat Monitoring - Bushland Condition 2011-2017

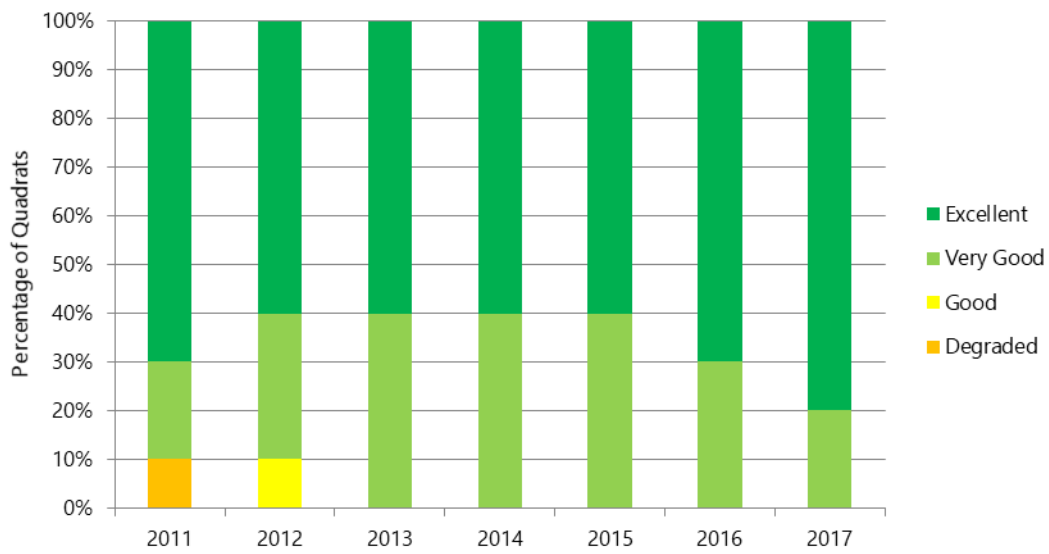
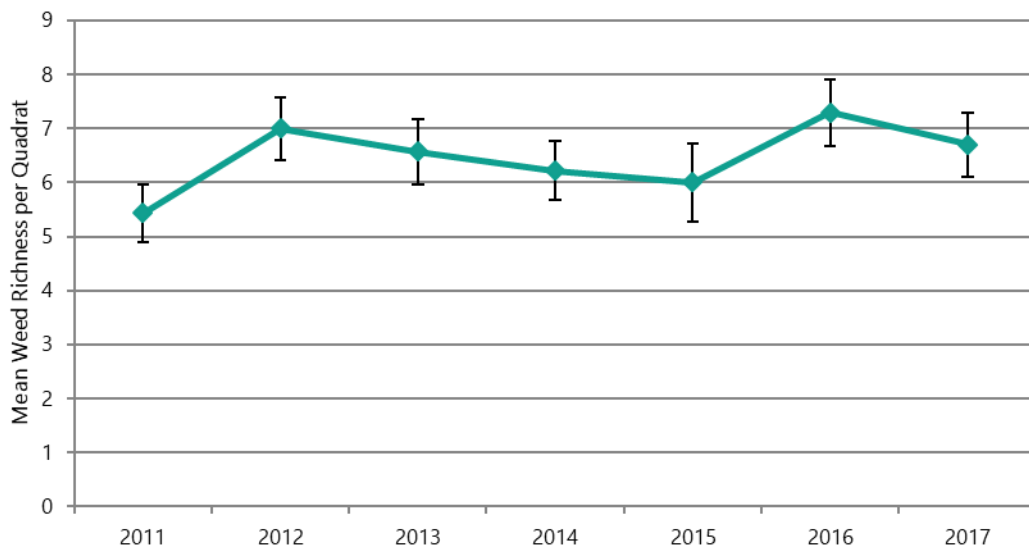


Figure 8 Quadrat Monitoring – Mean Species Richness per Quadrat 2011-2017



Attachment A. Weed Control Program.

Priority for Control	Scientific Name	Common Name	Justification	Suggested Method of Management & Control	Optimum Timing for Treatment
1	<i>Ehrharta calycina</i>	Perennial Veldt Grass	Most abundant and widespread weed within Jandakot Airport, this species can out-compete all other understory species and displace rare native species (e.g. Orchids). This species is also exceeding to 20% cover management target in western edge of Precinct 2B.	https://florabase.dpaw.wa.gov.au/browse/profile/347	Jun-Aug for herbicides
2	<i>Leptospermum laevigatum</i>	Victorian Tea Tree	This species is exceeding the 20% cover management target in areas and forming dense thickets displacing native plants (eastern area of Precinct 1A and northern fringe of 1B).	https://florabase.dpaw.wa.gov.au/browse/profile/5850	Variable - Refer to method.
3	<i>Zantedeschia aethiopica</i>	Arum Lily	Although this species is currently occurring in low density it can be a major weed of damp areas and is very difficult to eradicate once established. Due to the small number present this species should be targeted for eradication from the conservation precincts. Additionally as a declared pest plant the land holder is required to make efforts to reduce populations of this species	https://florabase.dpaw.wa.gov.au/browse/profile/1049	Jul-Sep
4	<i>Asparagus asparagoides</i>	Bridal Creeper	This species is currently occurring in low density it can be a major weed of all bushland areas and is extremely difficult to eradicate once established. Due to the small number currently present this species should be targeted for eradication from the conservation precincts. Additionally as a declared pest plant the land holder is required to make efforts to reduce populations of this species.	https://florabase.dpaw.wa.gov.au/browse/profile/8779	Jul-Aug
5	<i>Euphorbia terracina</i>	Geraldton Carnation Weed	This species appears to have become established around track edges in the airport since 2011. As the population is currently small and located in accessible areas it should be targeted for eradication. This species can invade bushland following disturbance such as fire.	https://florabase.dpaw.wa.gov.au/browse/profile/4648	Jun-Aug
6	<i>Freesia alba x leichtlinii</i>	Freesia	Although this species has been reduced in density since 2011 and has not shown any recent increases control works should be continued. This species can invade undisturbed bushland and out-compete native understory species.	https://florabase.dpaw.wa.gov.au/browse/profile/18392	Jun-Aug
7	<i>Pelargonium capitatum</i>	Rose Pelargonium	Populations of this species along road edges have been observed to have increased since 2011. This species is very effective at invading sandy areas following disturbance such as fire. Due to the population being currently restricted to the road edges and in smaller numbers it should be targeted for eradication to prevent spread.	https://florabase.dpaw.wa.gov.au/browse/profile/4343	Jun-Oct
8	<i>Gladiolus caryophyllaceus</i>	Wild Gladiolus	Although the populations of this species were not recorded as increasing in density it was recorded at more locations than previously. This widespread species should have targeted control conducted in areas of high environmental value (such as around rare Orchid populations) using low impact techniques like hand wiping.	https://florabase.dpaw.wa.gov.au/browse/profile/1520	Jul-Sep
9	<i>Acacia longifolia</i>	Sydney Golden Wattle	This species has been observed to be increasing in density at several points. In moist areas this species can form dense thickets excluding native vegetation and preventing formation of the understory favoured by animals such as Quendas.	https://florabase.dpaw.wa.gov.au/browse/profile/17861	Mar-Aug
10	<i>Avena barbata</i> <i>Bromus diandrus</i>	Bearded Oat Great Brome	These species can be targeted together at the same time as control works targeting other grasses such as <i>Ehrharta calycina</i> . Both species are able to invade disturbed bushland and were observed to be increasing in density and distribution	https://florabase.dpaw.wa.gov.au/browse/profile/233 https://florabase.dpaw.wa.gov.au/browse/profile/249	Jul-Oct
<p>This table is to be updated by JAH Environment Manager as required (e.g. following identification of a new weed species, or following a weed monitoring/survey event).</p> <ul style="list-style-type: none"> Weeds in areas of 'Degraded' bushland condition (i.e. >20% weed cover) will always be targeted for weed control as a priority. Species identified above as Priority 1-10 will, if present, be subjected to weed control activity on an annual basis. All other *target weed species should be controlled as resources allow and during control works targeting the listed priority species. Reference should also be made to Florabase (https://florabase.dpaw.wa.gov.au/) prior to treating weeds. It is anticipated that weed control practitioners will be suitably experienced and have access to the most up-to-date resources in order to control weed species appropriately and effectively. 					
<p>*Other target weed species: <i>Brassica tournefortii</i> Wild Turnip <i>Echium plantagineum</i> Patersons Curse <i>Watsonia meriana var. meriana</i> Watsonia <i>Asphodelus fistulosus</i> Wild Onion</p>			<p><i>Chamelaucium uncinatum</i> Geraldton Wax <i>Cynodon dactylon</i> Couch <i>Ehrharta longiflora</i> Annual Veldgrass <i>Euphorbia peplus</i> Petty Spurge</p>		<p><i>Fumaria capreolata</i> Whiteflower Fumitory <i>Hordeum leporinum</i> Barley Grass <i>Lagurus ovatus</i> Hares Tail Grass <i>Oxalis pes-caprae</i> Soursob</p>

END OF DOCUMENT