

***Macrozamia conferta* Translocation Management Plan Monitoring Report – Year 3 – review of the assessment of the effectiveness of the management actions.**

Dr James A.R. Clugston

Co-chair for BGCI Global Conservation Consortium for Cycads, Australia

Committee Member for Australian Network for Plant Conservation

Member of the IUCN SSC Cycad Specialist Group

Current position

Research Fellow, Cycad Genomics and Conservation - Western Sydney University and Montgomery Botanical Center

Qualifications

- 2014 – 2019 PhD Molecular Plant Sciences, University of Edinburgh, UK
- 2012 – 2013 MSc Biodiversity and Taxonomy of Plants, University of Edinburgh and Royal Botanic Garden Edinburgh, UK
- 2008 – 2012 BSc (Hons), HND and RBGE Diploma in Horticulture with Plantsmanship, University of Glasgow and Royal Botanic Garden Edinburgh, UK

Short bio

James is a leading cycad specialist research scientist with research interests focused on understanding the evolution and diversity of cycads and other gymnosperms using modern molecular and morphological approaches, including novel DNA sequencing techniques for conservation genomics, forensics, and phylogenetics to understand plant evolution and help conserve species. He is also the Co-chair of the BGCI Global Conservation Consortium for Cycads, Australia and a member of the IUCN SSC Cycad Specialist Group and has been working with cycads for over 15 years.

General comments

It is encouraging to see that advice from previous Year 1 and Year 2 reviews has largely been taken on board. The report demonstrates strong attention to detail, particularly in the consistent monitoring of translocated plants, despite the challenges associated with the extremely slow growth rates and periodic dormancy that characterise many *Macrozamia* species.

The decision not to proceed with seedling translocations at this stage is strongly supported. Seedlings below an adequate size threshold have a very low probability of survival. It is recommended that translocation only be considered once seedlings reach a minimum stem diameter of approximately 5 cm. Even at this size, young plants will require consistent watering and protection from initial environmental stressors to support successful establishment.

With respect to long-term survival assessment, it is recommended that large individuals showing no evidence of growth after five consecutive years at the translocation site be classified as deceased. Given the application of watering and rooting hormone treatments, prolonged inactivity beyond this period is highly unlikely.

Overall, survival outcomes to date are encouraging. The proportion of individuals retaining leaves indicates that the majority of plants remain viable, while the smaller proportion exhibiting new leaf flush reflects the inherently slow recovery rates typical of cycads. Although growth metrics can be difficult to quantify annually due to irregular flushing patterns, current results suggest generally positive establishment trends.

Propagation efforts show improvement, particularly in germination success rates, which are now more consistent with expectations for the genus. This represents a valuable pathway for strengthening ex-situ conservation stock. However, as with the translocation program, it remains unclear how individual material lines are tracked through propagation and planting stages, and this should be explicitly addressed in future reporting.

In summary, the program demonstrates careful implementation, improving propagation outcomes, and strong short-term survival of translocated plants. Clarification of provenance tracking, refinement of post-establishment management practices, and improved documentation of baseline site conditions will significantly strengthen the long-term conservation value of this program.

Page specific comments

Page 18 – survival: It is good to see that the number of plants bearing leaves demonstrates that most have survived. Just over 11% showing new growth is a sign of their slow recovery. Not all plants will flush each year, and so metrics can be difficult to quantify at times. Nonetheless, this shows overall good recovery.

Page 20 – Table 19: These germination rates look much better and much more in line with expectations. This is a good way of building the population from ex-situ stock.

Page 20 - Success rate of translocated plants: I do think measuring new leaf flushes is a good metric of growth. I feel this does demonstrate an element of success.

Recommendations

Specific recommendations for changes to management actions (which are outside the scope of this review of the assessment) have been made in a separate document provided to the client. Responses and implementation of these recommendations will be addressed in the MTMP Annual Report Year 4.

A handwritten signature in black ink, appearing to read 'JAR Clugston', with a stylized flourish at the end.

Dr James A. R. Clugston
PhD, MSc, BSc (Hons)



Attexó

Macrozamia conferta Translocation Management Plan Monitoring Report – Year 3

Prepared for: ACCIONA Energy Australia Global Pty Ltd
Date: 13 May 2025



Document information

Document	Macrozamia conferta Translocation Management Plan Monitoring Report – Year 3
Attexo ref	ACC-029
Date	13 May 2025
Prepared by	Peter Brennan
Reviewed by	Jeromy Claridge

Quality information

Rev	Date	Details	Authorisation	
			Name/position	Signature
1	13-05-2025	Issued for use	Jeromy Claridge, Principal Environmental Scientist	

Prepared for:

ACCIONA Energy Australia Global Pty Ltd

Prepared by:

Attexo Group Pty Ltd
attexo.com.au
ABN 75 637 138 008

Attexo Group Pty Ltd 2026

The information contained in this document produced by Attexo Group Pty Ltd is solely for the use of the Client identified on the cover sheet for the purpose for which it has been prepared and Attexo Group Pty Ltd undertakes no duty to or accepts any responsibility to any third party who may rely upon this document. All rights reserved. No section or element of this document may be removed from this document, reproduced, electronically stored or transmitted in any form without the consent of Attexo Group Pty Ltd.



Contents

1.	Introduction	1
1.1	Purpose and scope.....	1
1.2	Compliance summary	1
1.3	Peer-review of the first annual monitoring report	2
2.	Assessment of management actions	6
2.1	Recipient site maintenance and management.....	6
2.1.1	Weed management.....	6
2.1.2	Fire management	6
2.2	Translocation methods undertaken	6
2.3	Propagation and cultivation information collected	6
2.3.1	Seed collection and storage	6
2.3.2	Propagation.....	7
2.3.3	Tissue culture	7
2.3.4	Planting from nursery stock.....	7
3.	Monitoring information collected.....	8
3.1	Monitoring plots	8
3.2	Monitoring metrics and parameters	8
3.2.1	Fauna pest monitoring.....	11
3.3	Issues and corrective actions	11
4.	Translocation and propagation data.....	14
4.1	Translocation locations and numbers	14
4.2	Additional seed collection under PPGL.....	14
5.	Management activities undertaken during reporting period.....	15
5.1	Water	15
5.1.1	Watering requirements.....	15
5.1.2	Rainfall data.....	15
5.1.3	Rainfall data analysis procedure	16
5.1.4	Watering decision framework.....	16
5.1.5	Water quality.....	16
5.2	Fuel loads	16
5.3	Erosion	16
5.4	Weeds.....	16
5.5	Insects.....	16
6.	Translocation and propagation monitoring data	18
6.1	Monitoring data	18
6.2	Propagation data	19
6.3	Success rate of translocated plants	20
6.4	Success rate of propagated seedlings planted at the recipient site	20
7.	Conclusion	21



Appendices

Appendix A	Monitoring Statistics
Appendix B	Hazard reduction burn June 2024

Figures

Figure 1: A sample of propagated <i>M. conferta</i> seedlings collected in March 2025 to estimate stem diameter of the propagule population.	7
Figure 2: Historical rainfall at the <i>Macrozamia conferta</i> recipient site.	15

Tables

Table 1 <i>Macrozamia</i> translocation management program - key dates	1
Table 2 <i>Macrozamia conferta</i> translocation compliance criteria and response	2
Table 3 Recommendations of the peer-review of the first annual monitoring report.....	2
Table 4 Additional management actions suggested by the peer-reviewer.....	4
Table 5 Performance monitoring metrics outlined in the MTMP.....	8
Table 6 Parameters to assess performance during ongoing monitoring.....	10
Table 7 Summary of monitoring efforts do date	11
Table 8 Response to issues relating to translocation, propagation, and monitoring.....	12
Table 9 Weather stations used to estimate rainfall at translocation site.....	15
Table 10 Monitoring results for December 2024 – 12 months post translocation.....	18
Table 11 Percentage of plants with evidence of ongoing growth at the translocation site and reference site.....	18
Table 12 Seed collection and propagation data.....	20



1. Introduction

ACCIONA Energy Australia Global Pty Ltd (ACCIONA) is developing and operating the MacIntyre Wind Farm (MIWF) and associated Overhead Transmission Line (OHTL) (the Project), which were approved under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 22 February 2022. EPBC Act conditions of approval for the Project (EPBC 2020/8756 and EPBC 2020/8759) required the development and approval of a *Macrozamia conferta* Translocation Management Plan (MTMP) (Attexo 2022a) to support the translocation and propagation of impacted *M. conferta* specimens. This MTMP was approved by the Department of Agriculture, Water and the Environment (now the Department of Climate Change, Energy, the Environment and Water) on 13 May 2022.

1.1 Purpose and scope

As set out in the MTMP, and as required to address Condition 25 of the EPBC Act approvals for the Project, a monitoring report that assesses the effectiveness of the management actions of the MTMP is required (this report). This assessment must be undertaken “*within every twelve months for the first five years following the date on which the Minister first approved the MTMP and subsequently by every fifth anniversary of the date on which the Minister first approved the MTMP until the number of Macrozamia conferta individuals impacted by the action that survive for at least twenty years after the translocation exceeds the number of Macrozamia conferta individuals impacted by the action:*” (see **Table 2**).

This report is the third monitoring report (Year 3) on the effectiveness of management actions in the approved MTMP. The scope of the second monitoring report (Year 2) was expanded by five days to include data relating to the final translocations which were completed on 18-May-2024. Consequently, this report covers the period 19-May-2024 to 13-May-2025. A timeline of key dates is presented in **Table 1**.

Table 1 *Macrozamia* translocation management program - key dates

Event	Date
Macrozamia Translocation Management Plan approved	13 May 2022
Translocation works commence	15 June 2022
Baseline monitoring event	March/April 2023
First annual EPBC self-assessment report	13 May 2023
Final translocations (excluding incidental finds)	15 June 2023
6-month monitoring event	December 2024
Second annual EPBC self-assessment report	13 May 2024
Final translocation of incidental finds	18 May 2024
12-month monitoring event	June 2024
18-month monitoring event	December 2024
Third annual EPBC self-assessment report	May 2025
24-month monitoring event	June 2025

1.2 Compliance summary

Table 2 summaries how the *Macrozamia conferta* translocation project achieves compliance with the EPBC approval conditions which require reporting against the progress of the MTMP.

Table 2 *Macrozamia conferta* translocation compliance criteria and response

Condition number	Condition requirement	How condition has been addressed
25.	To determine the likely effectiveness of the management actions in the approved MTMP to translocate <i>Macrozamia conferta</i> individuals impacted by the action, the approval holder must engage a suitably qualified field ecologist to undertake, within every twelve months for the first five years following the date on which the Minister first approved the MTMP and subsequently by every fifth anniversary of the date on which the Minister first approved the MTMP, until the number of <i>Macrozamia conferta</i> individuals impacted by the action that survive for at least twenty years after translocation exceeds the number of <i>Macrozamia conferta</i> individuals impacted by the action, an assessment of the effectiveness of the management actions in the approved MTMP.	This report is the third monitoring report set to assess the effectiveness of management actions in the approved MTMP. Section 10.4 of the MTMP outlines reporting requirements including the following: • The final number of <i>M. conferta</i> collected from the Project footprint – see Section 4.1; • The final number of seeds collected from translocated plants – see Section 4.2; • Propagation success in nursery of seed collected – see Section 4.2; • The success rate and health status of translocated <i>M. conferta</i> – see Section 6.3; • The success rate and health status of propagated seedlings transferred into recipient site – see Section 6.3.
26.	The approval holder must ensure that each assessment of the effectiveness of the management actions in the approved MTMP is: • Subject to a peer-review completed within 6 months of the completion of each such assessment; and • Published on its website with the findings of the peer-review within 6 months of the completion of the peer-review and remains published for the remaining duration of this approval.	This report will be subject to peer-review, with findings published on the Project website within the required timeframes.

1.3 Peer-review of the first annual monitoring report

A peer-review of the second annual monitoring reported was completed by James A. R. Clugston PhD, MSc, BSc (Hons) and published on the Project website ([MTMP Annual Report – Year 2](#)). The comments and recommendations made within the scope of the review are presented in **Table 3**. Additional management actions outside of the scope of the peer-review were suggested separately by Dr. Clugston and these are presented in **Table 4**.

Table 3 Recommendations of the peer-review of the first annual monitoring report

Topic	Comment/recommendation	Implementation
Monitoring and reporting	<i>“As previously stated, good attention to detail has been applied to the report and in the ongoing monitoring of plants at the translocated site. This is despite the challenges posed by the slow growth</i>	n/a



Topic	Comment/recommendation	Implementation
Page 25: <i>"58% of plants held living leaves in December 2023 – 13.8% lower than the April 2023 baseline"</i>	<i>rates and, at times, the dormant state of individuals."</i> <i>"This would be expected because plants would have lost a significant mass to their root systems and may take years to recover. This metric will likely remain lower than the reference site for the next five years or more."</i>	Advice incorporated into ongoing analysis of survival statistics.
Page 25: <i>"high male to female ratio"</i>	<i>"This again is something to be expected as natural cycad populations are male-biased, and it is possible for male-representing plants to produce female reproductive structures, thus balancing the sex ratios in populations."</i>	Advice incorporated into ongoing analysis of sex ratio statistics.
Monitoring frequency	<i>"As mentioned, advice has been taken to reduce the frequency of monitoring efforts due to the slow development and growth rates in Macrozamia."</i>	n/a
Seed germination rates	<i>"...cycad seed germination can be very inconsistent, and some seeds can even germinate one year, after being "planted". This can make this metric more difficult to monitor and observe."</i>	Potential germination timeframes incorporated into discussions with propagation nurseries.
Monitoring metrics	<i>"Regarding the survival rate of large plants, I believe that if no growth has been observed from individuals at the translocation site after five consecutive years, they should be marked as dead. It is highly unlikely that with water and rooting hormone treatment, they would remain inactive for longer than this period."</i> <i>"I agree that monitoring survival/mortality rates with above-ground only is difficult. Some plants will go into dormant stages, and I think this is very likely due to the disturbance and regeneration of root systems."</i>	Five-year survival timeframe incorporated into future monitoring and reporting methodology. n/a

Topic	Comment/recommendation	Implementation
	<i>"Please consider that plants may not always show an increased number of leaves as they will only hold the total number of leaves they can sustain. Counting the number of older and dehisced leaves may be important here also. These plants can also go through long periods without producing new leaves, but higher water availability will change this."</i>	n/a - old and dehisced leaf count is incorporated into the existing monitoring methodology.
Page 5 Seed collection and storage: <i>"The propagation program has so far included the collection of all seeds from translocated plants, with no seed so far collected from wild populations"</i>	<i>"This statement is ambiguous and not clear. You are stating you have not collected seeds from wild populations, but from my understanding, seeds were collected from translocated populations that were wild. Or does this mean seeds were not collected from plants within the translocation site?"</i>	Section 2.3.1 revised to provide clarification.

Table 4 Additional management actions suggested by the peer-reviewer

Topic	Comment/recommendation	Implementation
pH of soil and water	<i>"I do have one concern regarding the high pH of the dam water, as there was no mention of the base site's soil pH prior to the translocations."</i>	Continue testing water prior to application on translocated population.
Watering frequency	<i>"I would strongly recommend significantly reducing watering times after year two, as the plants should have established a suitable root system by then."</i> <i>"I cannot see any indication when this will be stopped."</i>	No further watering planned for translocated population (excluding planting of propagated seedlings). Clarification on cessation of additional watering added to Section 5.1.4.
Propagation program	<i>"I would strongly suggest waiting until all seedlings reach at least 5cm in stem diameter before applying translocation. These plants will require more consistent watering and some protection from initial conditions to ensure their long-term survival."</i>	Planting of propagated seedlings has been delayed until stem diameter reaches ~5cm. Consistent watering and protection from initial conditions will be implemented.



Topic	Comment/recommendation	Implementation
Initially untagged individuals	<i>"I am not sure why individuals with bifurcating stems needed a different tagging system. They should be applied with the same systems, and it is not unusual for cycads to produce multiple offsets. These are likely very old plants."</i>	No action required – translocation complete.



2. Assessment of management actions

The effectiveness of management actions involved in the translocation program have been assessed in the following section. Where the details of management actions taken during translocation do not differ from those described in previous annual reports, these details are not repeated in this report. Where implemented actions have varied from the MTMP or previous annual reports, explanation and justification for these variations have been provided.

No changes were made to the structure of metadata associated with the Translocation Database (TD) described in previous reports. The structure and content of data capture, storage, and analysis processes also remained unchanged. Ongoing implementation of weed and fire management procedures relating to the recipient site are described in **Section 2.1**. Details of the translocation works, and methodology variations are outlined in **Section 2.2**. **Section 2.3** includes information relating to the propagation of collected seed by accredited nurseries and germination rates current at the time of writing. **Section 3.2** establishes a reporting template for ongoing monitoring of the recipient site and contains monitoring data relating to survival rate, health metrics, and potential threats. Issues encountered during the translocation program are listed in **Section 3.3**.

2.1 Recipient site maintenance and management

2.1.1 Weed management

Previous surveys of the recipient site identified three species listed as Weeds of National Significance (WoNS) and Restricted Invasive Weeds (Category 3) under the Queensland *Biosecurity Act 2014*; *Opuntia tomentosa* (velvety tree-pear), *O. stricta* (common prickly pear), and *Senecio madagascariensis* (fireweed).

During this reporting period, *Opuntia* spp. were controlled through physical removal using hand tools before being destroyed during hazard-reduction burn works conducted in June 2024 (**Section 2.1.2**). No *Senecio madagascariensis* were identified within the recipient site during this reporting period.

2.1.2 Fire management

A low-intensity hazard-reduction burn was completed between 05 June 2024 and 30 June 2024, under Queensland Fire and Emergency Services (QFES) Permit F424022 under Alan Bruce Forrest in charge of Moynalty FWD. An operation post-burn report and incident log provided by sub-contractor Fireland Consultancy are provided in **Appendix B**.

2.2 Translocation methods undertaken

No translocations were undertaken during this reporting period (19-May-2024 to 13-May-2025).

2.3 Propagation and cultivation information collected

To offset potential post-translocation losses, the MTMP outlines a propagation program to supplement translocations. Propagation protocols outlined for seed collected from *Macrozamia conferta* are being followed by two nurseries with previous experience in growing *Macrozamia* species (**Section 2.3.2**). These two nurseries report regularly on propagation progress and rates of successful germination (**Table 12**).

2.3.1 Seed collection and storage

EPBC approval condition 21 requires “a commitment to a program of propagation of seedlings to replace or exceed the number of *Macrozamia conferta* individuals impacted by the action that do not survive for at least twenty years after translocation”. The propagation program includes the collection of all seeds from translocated plants, as well as additional seed collected from populations outside of the translocation program under a Sustainable Harvest Plan approved with Protected Plant Growing Licence (PPGL) WA0063054.

2.3.2 Propagation

Seeds are currently being propagated at two nurseries with relevant experience propagating *Macrozamia* spp.: The Australian Botanic Garden Mount Annan, and Wallum Nurseries Pty Ltd. Both nurseries operate under the *Australian standards for maintenance of plant health* and the *Nursery Industry and Garden Australia Standard*. Evidence of operation under these standards can be provided upon reasonable request.

The number of seeds provided to each nursery and the current number of propagated individuals can be found in **Section 6**. Attexo facilitated collaboration between the two propagation nurseries in using the same propagation methodology based on expert advice and available literature. Methods for propagation proposed in the approved MTMP are as described in the first annual report.

2.3.3 Tissue culture

Cultivation from tissue culture was proposed in the MTMP as a measure, additional to seed propagation, to offset potential losses in the translocated population where translocation and propagation rates fell short of targets. Analysis of success rates is ongoing for both translocation and propagation efforts and cultivation from tissue culture is not being considered at this time.

2.3.4 Planting from nursery stock

The planting of nursery stock will be undertaken using a similar methodology to translocated *Macrozamia conferta*. In response to advice provided in the peer review of the second annual report, seedlings will not be propagated until they have reached a stem diameter of approximately 5cm. Requests for stem diameter estimates were made to each propagation nursery in February 2025. Responses to these requests showed that seedlings had an estimated stem diameter of less than 5cm. Planting out of propagated material at the recipient site has been postponed until Spring 2025.

Figure 1: A sample of propagated *M. conferta* seedlings collected in March 2025 to estimate stem diameter of the propagule population.





3. Monitoring information collected

3.1 Monitoring plots

Two monitoring events were conducted in the current reporting period (June 2024 and December 2024) to meet the specified requirements of the MTMP to assess the ongoing health of the translocated population and ensure appropriate actions are taken to achieve a net-loss of zero individuals over 20 years. To assess population metrics in an efficient manner, five monitoring plots of equal area were initially established. One monitoring plot (T2) was removed from ongoing monitoring efforts as proposed in the first annual monitoring report. Two plots lie within the recipient site to capture data on translocated plants and two plots lie within the nearby Durikai State Forest to capture data on existing populations of *Macrozamia conferta* in the wild (the reference site).

Selection of the reference site was based on criteria that aimed to achieve similar population structure, density, vegetation community, soil quality and altitude to the recipient site. It should be noted that plant age class was hard to determine without excavation, reducing the accuracy of any assessment of population structure.

3.2 Monitoring metrics and parameters

Ongoing monitoring is specified by the MTMP to assess the performance of individual plants over time and compare performance between translocation and reference populations. The parameters by which performance is to be assessed and reported are explained in **Table 5**. The metrics to underpin these parameters of performance are outlined in the MTMP and their implementation is shown in **Table 6**. Data were collected using ArcGIS Survey123 platform and included in the TD.

Adjustments to the frequency and quantity of monitoring events were proposed and justified in the first annual report and these changes were supported by the peer-review of that report. In response to additional advice provided by the peer-reviewer, an increased focus on the monitoring of qualitative parameters (predation, desiccation, inundation, symptoms of disease) was implemented to supplement the collection of quantitative performance parameters (pers. comm. J. Clugston, 2003). Ongoing frequency and quantity of monitoring events are presented in **Table 7**.

Table 5 Performance monitoring metrics outlined in the MTMP

MTMP Performance measures	MTMP description	Implementation using data
Survival/mortality	Total number of individuals present and population structure (i.e. % dead, mature and coning, mature, juvenile, or seedling).	The total number of individuals for each population will be reported based on the number of unique specimen ID entries for data collected in each plot. Each unique plant in a plot is expected to be monitored. Population structure will only be reported as: • Total number of plants; • Percentage of plants known to be mature (from coning in either the past or present as determining age for plants based on foliage alone is unreliable); and • Recruitment (indicative of seedling or juvenile numbers). The length of time between flushes of above ground foliage is unknown for <i>Macrozamia conferta</i>, so distinguishing living from dead plants based on above ground plant material is impossible. Performance will instead be reported using two proxy statistics:



MTMP Performance measures	MTMP description	Implementation using data
		- Percentage of plants displaying new growth since the previous monitoring period (Performance Measure – New growth; and - Percentage of plants bearing living leaf material. These two metrics approximate survival as plants that display an increased number of leaves since the previous monitoring period and plants with live leaves are likely alive. Analysis of these metrics across monitoring periods, will allow the reporting of population trends, and (assuming all translocated plants were alive at the time of planting) an approximation of the successful accomplishment of net zero loss of <i>M. conferta</i> by the Project.
Gender and reproduction	Presence of reproductive organs (i.e. cones and seed) and Male : Female ratio in the population	Whether a cone is present, the sex of the cone, and the developmental stage of the cone will be used to report: Percentage of plants that are known to be mature (individuals that have coned in the past or present [including sex identified from extraction data]); Percentage of plants confirmed as mature that are coning during the current monitoring period (ripe or undeveloped cones); Male : Female ratio of known-mature plants in each population; and Percentage of known females that have ripe cones at the time of monitoring (indicating seeding potential / presence of seeds).
New growth	Presence or absence of new growth	New growth will be reported as the percentage of plants that have experienced an increase in either the total number of leaves or an increase in the total number of live leaves, since the last monitoring round. This measurement encapsulates plants that have experienced new growth since the last monitoring round, even if all leaves are senescent in the most recent monitoring round (e.g. a plant may have one live leaf in monitoring round 1, but two senescent leaves in monitoring round two, and so has experienced new growth between monitoring periods). This metric of new growth is likely to be more useful in understanding population health than simply describing whether young or “new” leaves are present on a plant (e.g. in the Extraction Form).
Predation	Presence or absence of insect damage on leaves or cones).	Any obvious insect damage will be recorded. The percentage of individuals affected by predation will be reported. Large infestations in translocated plants will be dealt with if noticed as per the MTMP.

Table 6 Parameters to assess performance during ongoing monitoring

MTMP Collection Field	Implementation of field
Ecologist on site	The name of the ecologist undertaking the monitoring survey was recorded against each entry for an individual plant in the monitoring form.
Date and time	The date and time at which an individual plant was assessed during monitoring was recorded.
Specimen ID	The unique identification number of each plant (read from the steel tag adjacent each plant) was recorded so leaf data can be used to monitor plant growth over multiple monitoring periods. Inconsistencies in the number of monitoring plants will be addressed in future monitoring events by the creation of a list of plant specimen IDs for each plot to ensure all plants are checked during each monitoring event. Newly recruited plants will be given an ID for future monitoring purposes and added to the list.
Plot ID	Plot ID is recorded for each plant according to the ID of the monitoring plot in which it was found at either the recipient site (T1, T3) or reference site (R1, R2).
GPS coordinates	GPS coordinates for each plant are automatically recorded and used to assess whether Site ID was correctly recorded. A list of plant specimen IDs was created for each plot so that Plot ID can be confirmed, should GPS fail to record or appear incorrectly.
Number of green (living) fronds	The number of living fronds (those bearing green, photosynthetic material) is recorded for each plant.
Number of young fronds	The number of recently emerged 'young' fronds is recorded for each plant.
Number of dead fronds	The number of dead fronds (without green, photosynthetic material) is recorded for each plant.
Cone development and sex	Whether a cone is present on a given plant is recorded. If a cone is present, sex (Male, Female) and stage of development (Undeveloped, Ripe, Old) is recorded. Cones that are both 'Female' and 'Ripe' will be used to assess seed development (Collection field 10).
Seed development	Seed development will be assessed using information collected for cone development and sex (see Collection field 9).
Recruitment	The number of newly recruited plants in a plot will be recorded during each monitoring period. New plants will be given a unique specimen ID and added to the ID list for the plot in which they are recruited.
Presence of pollinators	Whether pollinators are present is recorded. It is expected that the type of potential pollinator will be recorded in the notes (Collection field 15).
Disturbance type	Visible impact to leaves (e.g. missing or discoloured material) is recorded and classified by likely cause (Predation, Dehydration, Fire, Other).

MTMP Collection Field	Implementation of field
Disturbance intensity	Disturbance intensity is estimated categorically according to the percentage of living leaf surface area impacted by disturbance (Low <5%, Medium 5-50%, High >50%).
Notes	Notes can be taken using the monitoring form for any reason, such as referencing the type of pollinator found or ID of a pest insect.

Table 7 Summary of monitoring efforts to date

Monitoring event parameter	MTMP description	MTMP frequency/quantity	Progress to date
Plant growth/population monitoring frequency	Growth of <i>Macrozamia conferta</i> individuals and population. Total number of individuals present and population structure (i.e. % living, mature and coning, mature, juvenile or seedling, M:F ratio)	Biannually (months 1-24) Annually (after 24 months)	Monitoring surveys completed for months 1, 6, 12, and 18.
Threat monitoring frequency	Identification of potential and existing threats from: • Predation • Fire • Weeds	Monthly for the first 6 months Each 6 months up to 24 months Annually after 24 months	Monitoring surveys completed for months 1, 2, 3, 4, 5, 6, 12, and 18.
Plant growth/population monitoring sample size	Plants within monitoring plots will be monitored post-translocation to measure and assess individual and population growth, identify potential threats or environmental factors within the translocation that may impact <i>M. conferta</i> , and provide recommendations to improve methods of translocation.	Two monitoring plots representing 10.9% of translocated plants and 6.9% of total recipient site area.	All monitoring events have proceeded based on this quantity of survey effort.

3.2.1 Fauna pest monitoring

The threat of disturbance to translocated plants from pest fauna remains low and monitoring activities have not identified evidence of damage to plants. Monitoring and management of pest fauna within the recipient site (as part of the broader Project offset area management) has commenced (Ecosure 2023 MacIntyre Wind Farm Pest management Plan, Revision 02, dated 13 October 2023).

3.3 Issues and corrective actions

As per the MTMP, any issues encountered during translocation, propagation, and monitoring are to be reported. Unexpected issues and how they were resolved are discussed in **Table 8**.

Table 8 Response to issues relating to translocation, propagation, and monitoring

Issue	Resolution
Translocation	
Initially untagged individuals	Clusters of <i>Macrozamia conferta</i> foliage may represent a group of multiple plants or a single multi-stemmed plant with separate leaf clusters. This uncertainty leads to some plants requiring their unique specimen identification tag to be assigned and affixed post-planting. In other cases, a tag may be dislodged and separated from the plant during transportation to the recipient site. If the correct tag could not be re-associated with its corresponding plant specimen, a new tag was assigned to the plant. The database entries related to these processes are then updated accordingly. Some translocated plants do not appear to have an excavation entry after being assigned a new tag where the original ID could not be re-associated.
Incidental finds of previously unidentifiable individuals	<i>Macrozamia conferta</i> can persist for many years without above ground plant parts. In this condition, individuals are unidentifiable to survey efforts despite ongoing growth of the subterranean caudex and root structures. When these individuals produce new leaf material which emerges above the ground surface, they are identified and translocated as 'incidental finds'. Translocation of incidental finds was completed on 18-May-2025. No further translocations are expected.
Propagation	
Lower than expected germination rates	As of 13 May 2025, germination rates for seeds collected during the translocation process are below the 85% germination rate assumed in the MTMP. Germination time may be greater than one year so germination rate may continue to increase. All collected seed was retrieved from the ground post-release from the maternal cone. Seed maturity and viability were difficult to determine, and it is likely that non-viable seed, delivered to the nursery led to a reduction in germination rate (pers. comm. J. Clugston, 2024). Future seed collection from wild populations will be timed to collect ripe seed on the cone, or recently released seed. Future estimates of the number of seeds required to be collected to meet translocation targets will be based on a 65% germination rate.
Monitoring	
Ambiguity of survival metrics	In response to recommendations made during peer-review of the second annual report (Table 3), individual plants which have provided no evidence of survival after 5 years will be considered deceased. In response to recommendations made during peer-review of the first annual report, additional quantitative and qualitative metrics of survival have been included in ongoing monitoring works. Since the presence/absence of living leaf material is insufficient to make an absolute determination of survival rates, trends in the number and life stage of leaves will be analysed across multiple monitoring periods. Qualitative assessments will be made on the quantity and cause of leaf damage. General observations on site condition and population health may also be included in future reports. The accumulation of this additional information over time will support future inferences on survival rates within the translocated population.
Timeline adjustments to accommodate additional translocations	As discussed in the first annual monitoring report, the number of translocated individuals increased by a factor of 3.5 compared with initial survey estimates. Delays in the completion of translocations due to this increase required adjustments to the timeline of monitoring outlined in the MTMP. Baseline monitoring data was collected in April and May of 2023, prior to the completion of translocation works. The MTMP monitoring schedule commenced as specified - following conclusion of translocation works in June 2023, with



Issue	Resolution
	the first monitoring event taking place six months later in December 2023. Table 1 provides a summarised timeline of the ongoing monitoring schedule.



4. Translocation and propagation data

4.1 Translocation locations and numbers

In the 12-month reporting period from 19 May 2024 to 13 May 2025, no additional *Macrozamia conferta* were translocated. Translocation of plants within the construction footprint is complete.

4.2 Additional seed collection under PPGL

306 seeds were collected in October 2024 under PPGL WA0063054 and delivered to the Wallum Nurseries Pty Ltd for propagation.

5. Management activities undertaken during reporting period

Following completion of major translocation works on 30 June 2023, threat monitoring occurred monthly for the first 6 months and is now being conducted every 6 months for the first 24 months. After 30 June 2025, threat monitoring will occur annually. Watering may occur more frequently if required, according to the decision framework outlined in the first annual monitoring report. Additional watering of translocated individuals will be discontinued after 2 years.

5.1 Water

5.1.1 Watering requirements

To control the risks associated with water supply (desiccation and waterlogging), rainfall of 35mm/month was required according to the water capture model described in the first annual monitoring report.

5.1.2 Rainfall data

During this 12-month monitoring period, daily rainfall data (**Figure 2**) was collected from the Mac North weather station maintained by ACCIONA and described in **Table 9**.

Figure 2: Historical rainfall at the *Macrozamia conferta* recipient site.

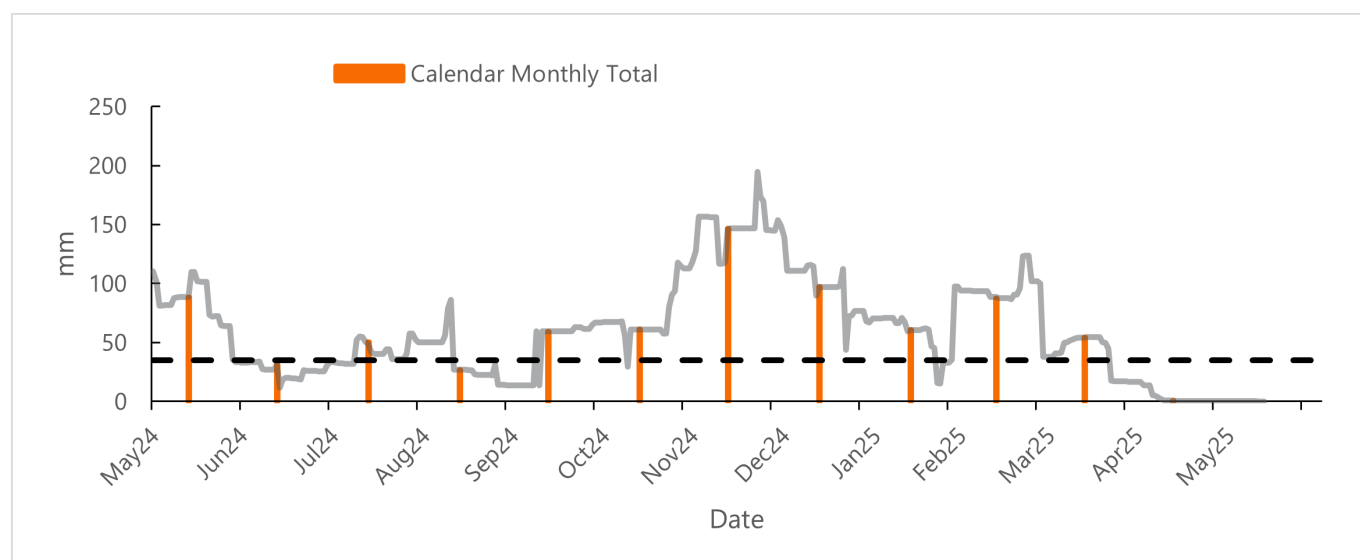


Table 9 Weather stations used to estimate rainfall at translocation site.

Description	Location	Distance from recipient site	Suitability	Date range
Mac North Weather Station (Remote Access)	-28.3285°, 151.6067°	2.1km	Closest available weather station	20221218 - present



5.1.3 Rainfall data analysis procedure

Weather station data is reviewed monthly, and data collated into a Weather Database. Long range forecasts are also considered in watering decisions and this data was inspected from the Bureau of Meteorology at <http://www.bom.gov.au/climate/outlooks/#/overview/summary/>.

Total rainfall in each calendar month is plotted along with a moving total of daily rainfall from the previous 30-day period. Target rainfall represents the quantity of rain required to deliver 10L of water per plant based on the water capture model presented in the first annual monitoring report.

5.1.4 Watering decision framework

Water management decisions seek to minimise the risks associated with both desiccation and waterlogging in the context of monthly total rainfall, long-term weather forecasts and physical assessment of site conditions. Manual watering action may be triggered when rainfall received by the site drops below the target rainfall amount of 35mm in a given calendar month or moving 30-day period. Deferral of a triggered manual watering action may occur if sufficient rainfall is predicted within two weeks of the planned watering event. Where practical, on-ground inspections of site conditions will be used to support decision-making related to manual watering.

Advice from peer review confirms the requirements of the MTMP to cease application of additional water after 2 years post-translocation.

5.1.5 Water quality

No additional watering works were undertaken during this reporting period, so no water quality testing was conducted.

5.2 Fuel loads

A low-intensity hazard-reduction burn was completed between 05 June 2024 and 30 June 2024, under Queensland Fire and Emergency Services (QFES) Permit F424022 under Alan Bruce Forrest in charge of Moynalty FWD. An operation post-burn report and incident log provided by sub-contractor Fireland Consultancy are provided in **Appendix B**.

5.3 Erosion

No specific threats from erosion at the recipient site have been identified during this reporting period.

5.4 Weeds

Some recruitment of *Opuntia* sp. was observed at the site during this reporting period. Incidental identification and manual removal during routine maintenance activities is ongoing. Future threat monitoring activities may recommend additional action to remove weeds if levels of infestation rise.

5.5 Insects

21 observations of Cycad Blue butterfly or caterpillar (*Theclinessthes onycha onycha*) were reported at the recipient site during the monitoring events in this reporting period. One observation of *T. onycha onycha* at the reference site was reported. Observations of any leaf predation increased by a factor 2.7 at the Translocation Site and 9.0 at the reference site. This increase may be explained by fluctuations in the life cycle of predators in response to changes in climactic conditions and seasonal variability. Additionally, since *Macrozamia conferta* typically flush new leaves once per year, the percentage of leaf area affected by predation is likely to increase over time. The monitoring methodology does not account for predation on senesced leaves, which may produce a periodic cycle in the measurement of leaf predation as new leaves are flushed, predated on, and senesced. The accumulation of data collected in subsequent



monitoring events will allow a more realistic assessment of ordinary predation levels. Application of insecticide was deemed unnecessary during this reporting period.



6. Translocation and propagation monitoring data

6.1 Monitoring data

Table 10 presents data from monitoring plots for the December 2024 monitoring event in a format consistent with the presentation of monitoring data in the first annual report. Percentage change values were calculated against data collected in December 2023. **Section 6.3** presents a summary of trends developing in the monitoring data collected to date and a discussion of the implications for ongoing management activities. More detailed statistics for each individual monitoring plot can be found in **Appendix A**.

Table 10 Monitoring results for December 2024 – 12 months post translocation

Monitoring Data									
Population	Plot ID	Number Tagged Plants		% Plants Known Mature (plants with cone present or past)		Male : Female Ratio of Known Mature Plants		% Plants with Visible Predation	
	R-Average	141		2.55		1.3:1		29.5	
	T-Average	780		2.45		5.6:1		11.5	
	R-Total	281							
	T-Total	1,510							
Reproduction	Plot ID	Number New Plants (recruitment)	% Population Increase (compared to last monitoring event)	% Population Increase (compared to initial numbers)	% Known Mature Plants Currently Coning (undeveloped or ripe cones)	Male : Female Ratio of Currently Coning Plants (undeveloped or ripe cones)	% Known Female Cones Ripe (seeding potential)	Any Pollinators Present?	
	R-Average	3.5	2.6	2.2	80	1.5:1	25	No	
	T-Average	8.5	1.1	1.1	60	4.3:1	25	No	
	R-Total	5							
	T-Total	0							
Survival	Plot ID	% Plants Bearing Living Leaf	% Change in Plants Bearing Living Leaf (compared to last monitoring event)	% Plants Bearing Living Leaf (compared to initial number of plants in plot)	% Plants Displaying New Growth	% Change in Plants Displaying New Growth (compared to last monitoring event)			
	R-Average	97.4	-0.85	-0.85	11.47	-17.36			
	T-Average	66.99	13.73	13.73	14.29	9.06			
R-Average is the mean of two reference plots located in Durikai State Forest. R-Total is the sum of the two reference plots. T-Average is the mean of two monitoring plots within the recipient site used to represent the translocated population. T-Total is the sum of two monitoring plots.									

Table 11 Percentage of plants with evidence of ongoing growth at the translocation site and reference site.

Location	December 2023 monitoring event	December 2024 monitoring event
Translocation site	75%	86%
Reference site	95%	99%



6.2 Propagation data

Data regarding seed collection, propagation, and survival over the reporting period are presented in **Table 12** and will be updated at each reporting period. Reports were received in February 2024 from both nurseries. The average germination rate was 60% at the time of reporting, however both nurseries report that germination is still ongoing and so the rate may increase over time.

Table 12 Seed collection and propagation data

Nursery	Seeds Provided to Date	Number of Plants Germinated to Date	% Germination Success	Previous Number of Plants in Nursery	% Increase (compared to last monitoring period)
The Australian Botanic Garden Mount Annan	307	161	52	143	12.6
Wallum Nurseries Pty Ltd	908	343	60	219	37.8
Total	1215	504	55	362	41.5

6.3 Success rate of translocated plants

At the translocation site, 67% of plants held living leaves in December 2024 – a 13.7% annual increase, bringing this metric back to equivalence with the April 2023 baseline. At the reference site, 97.4% of plants held living leaves in December 2024 – 0.1% lower than observed in December 2023, but still above the April 2023 baseline. As advised by the peer-review of the first annual monitoring report, this instantaneous leaf count is an insufficient metric with which to draw conclusions on the success rate of translocated plants. This statistic will continue to be reported and its fluctuations over the next 12 months may provide insight into the effect of seasonality and time-since-translocation on living leaf number.

Table 11 presents a derived statistic showing the percentage of individuals showing evidence of leaf production since monitoring began at the recipient site (86%) compared with the reference site (99%) in December 2024. For translocated individuals, this metric has increase by 11 percentage points in this reporting period. Trends in this statistic measured across future monitoring events will provide an indication of the success rate of the translocated plants compared with those at the reference site. As the length of time increases in which an individual plant shows no evidence of leaf production, the likelihood of survival decreases (although the individual may be surviving below ground).

The limited data collected to date, supports a translocation survival rate of over 80%, above the low-end rate specified in the MTMP (75%). To support no net loss of *Macrozamia conferta* impacted by the Project, propagation of an additional 2,534 seedlings will be required. Based on a germination rate of 65%, collection of an additional 3,898 seeds from wild plants will be required. Given the long propagation timeline of the species, we recommend continuing the seed collection program in the current calendar year.

6.4 Success rate of propagated seedlings planted at the recipient site

As of 13 May 2025, no propagated seedlings have been planted at the recipient site. The survival statistics of propagated stock planted at the recipient site (within monitoring plots) in future will be presented here.

7. Conclusion

This report presents the results of December 2024 monitoring activities, to support the implementation of the MTMP.

Assessing the survival rate of the translocated population is confounded by the subterranean morphology and slow growth rate of the species. *M. conferta* can persist for many years without above ground plant parts. Estimates based on instantaneous leaf counts are likely to grossly underestimate survival rates where plants may have lost their fronds, or not held living fronds, during translocation. Identification of 'new' plants within a plot may represent either recruitment or the re-emergence of a pre-existing plant.

The monitoring challenges presented by *M. conferta* morphology are exacerbated by its comparatively slow and sporadic growth rate. In each growing season, a viable individual may produce none, one, or many new leaves. Living leaves have a proclivity to resist senescence and can be held in situ for several years.

At the translocation site, 67% of plants held living leaves in December 2024 – approximately equivalent to the April 2023 baseline and 13.7% higher than the December 2023 results. At the reference site, 97.4% of plants held living leaves in December 2024 – 3.0% higher than the April 2023 baseline.

The data presented in this report shows a higher male to female ratio in the translocated population than that seen in the reference population. Advice provided in the peer-review of the second annual report suggests this ratio is within the bounds of normalcy. The majority of monitored plants at the translocation site are still of undetermined sex. The possibility of genetic analysis of sex ratios in the translocation and reference population may be investigated in future, as recommended in the peer-review of the first annual report.

Future translocation monitoring events are scheduled to take place annually, commencing in June of 2025. Results from these monitoring events will be reported in the MTMP Annual Report Year 4.



Attexó

Appendix A
Monitoring Statistics



Table A.1: December 2024 Monitoring Statistics – Population

Plot ID	Total Number Tagged Plants Surveyed	Number Known Mature Plants (plants with cone present or past)	% Plants Known Mature (plants with cone present or past)	Male : Female Ratio of Known Mature Plants	Number Plants with Visible Predation	% Plants with Visible Predation
R1	75	2	2.70	1:1	23	31
R2	206	5	2.4	1.5:1	58	28
T1	1011	14	1.4	3.3:1	149	15
T3	548	30	5.35	8:1	42	8
R-Average	142.5	3.5	2.55	1.3:1	14	29.5
T-Average	779.5	18.5	2.45	5.6:1	7.5	11.5
R-Total	281	7			81	
T-Total	1559	44			191	

Table A.2 December 2024 Monitoring Statistics – Reproduction

Plot ID	Number New Plants (recruitment)	% Population Increase (compared to last monitoring event)	% Population Increase (compared to initial number of plants in plot)	Number of Plants Currently Coning (undeveloped or ripe cones)	% Known Mature Plants Currently Coning (undeveloped or ripe cones)	Male : Female Ratio of Currently Coning Plants (undeveloped or ripe cones)	% Known Female Cones Ripe (seeding potential)	Any Pollinators Present?
R1	1	1.4	1.4	2	100	1:1	0	No
R2	6	3	3	3	60	2:1	50	No
T1	11	1.1	1.1	13	93	5.5:1	0	No
T3	6	1.1	1.1	8	27	3:1	50	No
R-Average	3.5	2.6	2.2	2.5	80	1.5:1	25	
T-Average	8.5	1.1	1.1	10.5	60	4.3:1	25	
R-Total	7	2.2	1.82	5				
T-Total	17	1.1	0.00	21				



Table A.3 December 2023 Monitoring Statistics – Survival

Plot ID	Number Plants Bearing Living Leaf	% Plants Bearing Living Leaf	% Change in Plants Bearing Living Leaf (compared to last monitoring event)	% Change in Plants Bearing Living Leaf (compared to initial number of plants in plot)	Number Plants Displaying New Growth	% Plants Displaying New Growth	% Change in Plants Displaying New Growth (compared to last monitoring event)
R1	72	97.3	-2.7	-2.7	8	10.81	-13.51
R2	193	97.5	1	-2.5	24	12.12	-18.38
T1	681	58.06	9.29	9.29	177	17.51	15.55
T3	416	75.91	18.16	18.16	151	11.07	16.48
R-Average	132.5	97.4	-0.85	-0.85	16	11.47	-17.36
T-Average	548.5	66.99	-13.73	-13.73	164	14.29	9.03
R-Total	265				32		
T-Total	1097				328		
Ecologists on Site: Peter Brennan, Joshua Prostramo, Joseph Trigger							

R-Average is the mean of two reference plots located in Durikai State Forest. R-Total is the sum of the two reference plots.

T-Average is the mean of two monitoring plots within the recipient site used to represent the translocated population. T-Total is the sum of two monitoring plots.



Appendix B

Hazard
reduction burn
June 2024

S28 – A OPERATIONAL POST BURN REPORT

BURN NAME	MacIntyre Windfarm 1 & 2	Lot/Plan/s No. (all approvals obtained) ☒ Yes	Lot 4 Plan BNT1111 Burn Permit: F 424022 05/6/24 -30/6/24
Burn No.	MW 1&2/24		
Location	Cement Hills 4352	Road Segment No.	565 Hunters Hill Rd
LGA	Goondiwindi Regional Council	Proposed Timing	June 2024
Date Burn 1 started	05/06/2024	Time	12:15hrs
Date Burn 1 deemed safe	07/06/2024	Time	13:00hrs
Date Burn 2 started	24/06/2024	Time	13:20hrs
Date Burn 2 deemed safe	27/06/24	Time	16:00hrs

Incident Controller	Cameron Allanson	Fireland Consultancy
	Name	Position

SITUATION - OUTCOMES

Area to be treated	All stacks within 10Ha Offset Site	Percentage aim	100% Stacked Timer	Last Fire	Unknown
Actual treated area	All stacks within 10Ha Offset Site	Percentage	100% Stacked Timer	Severity	Low

MISSION – OUTCOMES

Aim & Objectives (Outline the general intent of the proposed burn and the specific objectives. Consider fuel load, fuel structure & mosaic effect)	Undertake stack burns of dead timber within the Macrozamia Translocation Site. Fully minimize fire impact on existing mature trees and translocated Macrozamia. Reduce heavy stacked fuel hazard by 100% across burn area No engagement of public or private assets Smoke to have minimal impact Acciona windfarm operations and neighbouring properties.
--	--

Outcomes (Outline if the objectives were met, if not why not)	Burn was implemented out with water. Ash beds remain in situ. No fire impact on existing trees and translocated Macrozamia. No engagement of public or private assets. No reported or observed smoke impacts to Windfarm or neighboring properties. All stacks fully burnt down by 16:00hrs on the 27/06. Ash beds blacked out and wet down across the entire site, likely to retain some residual heat for several days.
List recommendations (For burn area, may include fire trail works, etc)	Consider annual control line/track maintenance around site to prevent any unplanned fire entering the site. Consider fuel hazard management in adjacent areas. Heavy timber windrows in surrounding area would be difficult to manage in the event of an unplanned burn.

EXECUTION – DETAILS

Weather Stats

As per operational Log

Comments

(List any weather conditions that significantly impacted operations)

Nil.

Favorable weather conditions on all burn days.

Fire danger index

5-8 Low/Mod

Actual KBDI

Estimated ~ 156

Ignition used

(Describe the ignition)

☒ On ground ignition

☐ Aerial Ignition

Implementation Comments

All stacks had been moved away from base/immediate proximity of existing trees to prevent scorch damage with small excavator and manual handling.

Mineral earth control line around all stacks, potential hazardous trees or mature trees at risk individually identified and marked for ignition consideration and patrol monitoring during stack burning.

Ignition of stacks by utilizing standard drip torch mixture (75% Diesel / 25% ULP). Modified mix ratio as burn progressed to (90% Diesel / 10% ULP) to minimize ULP vapor flash off and achieve longer ignition burn time to the material.

Variations due to stack size/weather conditions/material size.

Total Stacks Burnt/Drip torch fuel expended by burn days:

05/6/24 17 Stacks Drip torch Fuel: 90L

06/6/24 19 Stacks Drip torch Fuel: 120L

24/6/24 36 Stacks Drip torch Fuel: 130L

25/6/24 70 Stacks Drip torch Fuel: 140L

26/6/24 40 Stacks Drip torch Fuel: 110L

Total 5 Ignition/Burn Days: **182 Stacks**

Total 5 Ignition/Burn Days: **590L Drip torch Fuel**

ADMINISTRATION	
Complaints ☒ No Issues	Nil
Infrastructure damage ☐ No Issues	Nil
Impact on road network ☒ No Issues	Nil
Impact on community ☒ No Issues	Nil
Impact on direct residents or stakeholders ☒ No Issues	Nil
SAFETY	
Any incidents	Safety Note: Rocks and soil present in Stack Burns. Soil in particular rocks became super-heated during burning process. When wetting down for the final black out some rocks shattered. Staff and personal present advised to always wear eye protection and other required PPE when blacking out ash beds with water.

Photos









Smoke Hazard Signs placement as per Map



S27 – E INCIDENT LOG

Incident Name		Acciona Stack Burn # 1 & # 2			
Name/Function		Cam Allanson Incident Controller		Page No	1 - 6
Location		Attexo Macrozamia Translocation Site 565 Hunters Hill Rd		Date	05/06/2024 – 27/06/24 Incl
Time	In/out	Name/unit	Important Notes		Action Required Y/N
04:55		Cam	Incident Log opened for 5/6/2024		N
05:00		Cam	Review planning docs and tasking: Attexo Site Fire Management Plan N/A Attexo Site Planned Burn Plan N/A Generate Incident Log and Local Fireland Operational Burn Plan based on information available and site inspection.		N
06:00	In	Cam/Ken	Daily Acciona Site Inductions/JSAs Fireland		N
10:00		Ken	Weather Observations T: 15c W:0 D:0 RH: 70%		N
10:15		Cam	Burn Permit No: F424022 received via email		N
11:30		CA	Smoke Hazard signs erected near turbines #17 & #18 as per Attexo Map DWG: ACC-029 Completed relevant inductions. Consider burn very low risk as stacks are well separated with very little surface fuel with mineral earth control line around each.		N
11:45		KR	Weather Observations T: 16c W: 1kph D: SW RH: 52%		N
12:00		CA	Firecom 1800 658 219 contacted and advised of planned burn operation commencing ignition.		N
12:15		CA/KR	6 x Stacks ignition, observe fire behavior prior to further stacks ignition. Slow light up, well cured large timber with very little fine material.		N
12:45		Ken	Weather Observations T: 17c W: 1kph D: W RH:50%		N
13:30		CA/KR	Further 6 x stacks ignition. Slow light up, well cured large timber with very little fine material. All stacks burning well once going. Very little smoke.		N
14:20		Ken	Weather Observations T: 17c W: 1kph D: W RH:52%		N
14:30		Cam	Further 5 x stacks ignition. Slow light up, well cured large timber with very little fine material. All stacks burning well once going. Very little smoke.		N

16:30		Ken	Weather Observations T: 17c W: 0kph D: 0 RH: 63%	N
17:00		CA	17 stacks all burning down well with little active flame or smoke, excavator assisting with restacking as burndown occurs.	N
17:40		Ken	Weather Observations T: 16c W: 0kph D: 0 RH: 100%	N
17:45	Out	CA/KR	Departed burn area to site office for sign out. 2 x Attexeo contractors to remain onsite for safety watch. Comms plan between Fireland and Contractors established for duration of evening activities. 17 Stacks 90L Drip torch Fuel Expended	N
18:30		CA	Firecom 1800 658 219 contacted and advised of planned burn operations ceased for the day area safe with patrol until 22:00.	N
22:00		CA	Received advice from Attexo contractor that all stacks had fully burned down, area safe, cease all activities for the evening. CA	N
22:10		CA	Incident Log Closed for 05/06/2024	N
06/06 06:30		CA	Incident Log Opened for 06/06/2024 Depart Warwick for site.	N
07:30	In	CA & KR	Signed in at site.	N
07:55		CA & KR	Daily Acciona Site Inductions/JSAs Fireland	N
08:15		CA	Firecom 1800 658 219 contacted and advised of planned burn operation recommencing ignition.	N
10:00		KR	Weather Observations T: 14c W: 3kph D: WSW RH: 86%	N
11:00		CA	11 stacks ignition and burning	N
12:30			Weather Observations T: 14c W: 1kph D: SW RH: 59%	N
14:50		KR	Weather Observations T: 9c W: 2kph D: SW RH: 60%	N
15:00		CA	8 stacks ignition and burning	N
15:30		CA	19 stacks all burning down well with little active flame or smoke, excavator assisting with restacking as burndown occurs. Will modify drip torch mix for next ignition process.	N
16:30		KR	Weather Observations T: 9c W: 3kph D: SW RH: 56%	N

17:30		CA	All stacks burnt down fully area deemed safe.	N
17:45		CA/KR	Departed burn area to site office for sign out. 2 x Attexeo contractors to remain onsite for safety watch. Comms plan between Fireland and Contractors established for duration of evening activities. 19 Stacks 120L Drip torch Fuel Expended	N
18:00		CA	Advised Firecom area secure ceased operations for the day.	N
18:30 6/6		CA	Incident Log Closed for 06/06/2024	N
06:15 7/6		CA	Incident Log Opened for 07/06/2024	N
07/06 07:15	In	KR	KR Signed into site Daily Acciona Site Inductions/JSAs Fireland.	N
07:45		KR	KR Patrol, rake ash beds and wet down hot spots.	N
10:00		KR	Weather Observations T: 9c W: 3kph D: SW RH: 89%	N
13:00	Out	KR	Completed patrols/blackout area deemed safe. Firecom advised all operations completed. Will return later in the month when further stacks have been prepared. KR Signed out of site. Mobilized back to BNE.	N
18:00		KR	Arrived BNE	N
18:30 6/6/24		CA	07/06/2024 Incident Log Closed f Acciona Stack Burn # 1	N

24/06 07:00		CA	24/06/2024 Incident Log Opened for Acciona Stack Burn # 2	N
12:30	In	CA & KR	Return to the burn site to complete the rest of the stack burns. Excavator and manual labor deployed over last few weeks stacking timber into stacks away from Macro translocation sites and established mature trees. Advised approximately 80 stacks to be burnt. Signed in at Acciona Site.	N
13:00		CA & KR	Daily Acciona Site Inductions/JSAs Fireland	N
13:20		CA	Firecom 1800 658 219 contacted and advised of planned burn operation recommencing ignition on current Burn Permit No: F424022	N
13:45		KR	Weather Observations T:18c W:1kph D:W RH:44%:	n
15:30		KR	Weather Observations T:17c W:1kph D:W RH:60%:	N
16:30		CA	Ceased lighting 36 stacks. Lighting up and burning much faster after restacking and several weeks drying.	N
18:00		CA	Stacks well burnt down area deemed secure.	N
18:30	Out	CA/KR	Departed site signed out return to Karara	N
18:40		CA	Advised Firecom area secure ceased operations for the day 36 Stacks 130L Drip torch Fuel Expended	N
19:00		CA	Incident Log Closed for 24/06/2024	N
25/06 06:00		CA	Incident Log Opened for 25/06/2024 Depart Karara for Gore to refuel transit to site.	N
06:30	In	CA	Sign in a site	N
07:00		CA	Firecom 1800 658 219 contacted and advised of planned burn operation recommencing ignition on current Burn Permit No: F424022	N
07:05		CA/KR	Daily Acciona Site Inductions/JSAs Fireland	
07:15		CA	Commenced stack ignition. Aim to continue ignition all day until 16:00 using 2 x crews. 33 unit & 41 unit deployed separately working inwards from perimeter on remaining stacks.	N
07:30		KR	Weather Observations T:16c W:5kph D:S RH:50%:	N

09:00		CA	Ignition rate much improved.	N
10:30		KR	Weather Observations T:19c W:7kph D:S RH:56%:	N
12:00		KR	Weather Observations T:17c W:3kph D: N RH:60%:	N
15:30		KR	Weather Observations T:17c W:1kph D:W RH:65%:	N
15:40		CA	Ceased lighting all 70 stacks burning down quickly/cleanly.	N
17:00		CA	Area deemed safe. 70 Stacks 140L Drip torch Fuel Expended	N
17:30	Out	CA	Signed out of site.	N
17:50		CA	Advised Firecom area secure ceased operations for the day	N
18:00		CA	Incident Log Closed for 25/06/2024	N
26/06 06:00		CA	Incident Log Opened for 26/06/2024 TVL Karara to site	N
06:30	In	CA	Sign in at site.	N
06:55		CA /KR	Daily Acciona Site Inductions/JSAs Fireland	N
07:05		CA	Firecom 1800 658 219 contacted and advised of planned burn operation recommencing ignition on current Burn Permit No: F424022	N
07:30		KR	Weather Observations T:13c W:0 D:0 RH:78%:	N
08:00		CA	22 stacks ignition good conditions burn down steady.	N
09:30		KR	Weather Observations T:18c W:4kph D:N RH:56%:	N
12:00		KR	Weather Observations T:20c W:5kph D: N RH:56%:	N
13:45		CA	Ignition progressing well. Additional 18 Stacks burning down.	N
14:50		CA	Ceased ignition all identified stacks burning down quickly. 40 Stacks 110L Drip torch Fuel Expended	N
16:00		CA	Advised Firecom area secure ceased operations for the day.	N
16:15	Out	CA	Signed out of site return to Karara.	N
17:00		CA	Incident Log Closed for 25/06/2024	N

27/06 07:00	In	CA/KR	Incident Log Opened for 26/06/2024 Travel Karara to site Signed in. Daily Acciona Site Inductions/JSAs Fireland	N
07:15		CA	Firecom 1800 658 219 contacted and advised of planned burn operation ignition complete, and no further ignition to occur and the burn area was being mopped up and blacked out.	N
07:30		CA	90% of stacks fully burnt down to ash heaps. Excavator restacking remaining 10% of stacks to achieve full burn down.	N
11:00		CA	All stacks fully burnt down to ash heaps; each ash heap wet down to cover hot spots. Excavator ceased operations.	N
13:00		CA	All ash heaps wet down no smoke evident, some larger ash beds still steaming continue to wet down hot spots.	N
14:00		CA	Full patrol of all areas. Meet with SB & PB satisfied with outcome. Excavator to remain onsite ((Dry hire) if required.	N
15:00		CA	Final Check of site. All secure. Likely to be residual heat in some ash bed for several days. Mineral earth surrounds all ash beds with little available fuel adjacent given modified landscape. General height of ash beds 30cm – 50cm. Deemed fully safe. Commenced wash down of equipment prior to redeployment off site.	N
16:40	Out	CA/KR	Sign out of site	N
17:00		CA	Firecom 1800 658 219 contacted and advised that all planned burn operations have ceased, and site has been blacked out and deemed fully safe. All operations against Permit: F424022 now complete and permit can be closed out.	N
1745		CA	Incident Log Closed for 27/06/2024 No further action on this incident.	N