Report

Compliance Report EPBC 2017/8133

Trieste Seismic Survey

3 December 2022 to 3 December 2023

Review record

Revision	Date	Reason for issue	Reviewer/s	Consolidator	Approver
A	13/12/2023	Draft issued for internal review	John Stamatiou	Pearl Catford	-
0	15/12/2023	Approved for submission to DCCEEW	John Stamatiou	-	Tim Flowers

Compliance Report EPBC 2017/8133

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Declaration of Accuracy

In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	
Full Name (Please Print)	Timothy Flowers
Position (Please Print)	Head of Environment
Organisation (please print including ABN/CAN if applicable)	Beach Energy Resources (Perth Basin) Pty Limited (previously Lattice Energy Resources (Perth Basin) Pty Ltd)) ACN 007845338
Date	15 December 2023

Compliance Report EPBC 2017/8133

1 Introduction

Beach Energy Resources (Perth Basin) Pty Limited (Beach, previously Lattice Energy Resources (Perth Basin) Pty Ltd)) (ACN 007845338), undertook the onshore Trieste 3D seismic survey, near Eneabba, Western Australia (EPBC 2017 / 8133) between December 2019 and February 2020. The approved action was to undertake an onshore three-dimensional (3D) seismic survey near Eneabba in the North Perth Basin, mapping geological formations to assist in the search for conventional gas reserves. The survey took place in Exploration Permit 320 (EP 320) of the northern Perth Basin, approximately 13 km north of the town of Eneabba and 40 km southeast of the town of Dongara, with an acquisition area of 217 square kilometres (km^2).

The survey was conducted from December 2019 to February 2020. Ongoing activities associated with the seismic survey are limited to rehabilitation monitoring, and (if required) rehabilitation works and reporting. This Annual Compliance Report covers the period of 3 December 2022 to 3 December 2023 (the reporting period).

1.1 Approval under the Environmental Protection and Biodiversity Conservations Act 1999

Approval for the Trieste 3D Seismic Survey under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was granted on 11 October 2019 (EPBC Reference 2017-8133) by the Department of the Environment and Energy (DoEE, now the Department of Agriculture, Water and the Environment, AWE) (refer Appendix A).

On 12 February 2021 the decision to vary the conditions of approval was made under section 143 of the EPBC Act. The variation meant that conditions 1, 4 and 10 were updated or replaced (Refer Appendix B).

2 Purpose

This Annual Compliance Report has been prepared to meet the requirements of Condition 7 of the EPBC approval 2017/8133 which states that:

"The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or as otherwise agreed to in writing by the Minister".

The Trieste 3D seismic survey commenced on 3 December 2019. This Annual Compliance Report covers the period of 3 December 2022 to 3 December 2023 (the reporting period).

3 Description of Activities

3.1 Seismic Survey

The Trieste 3D Seismic Survey was conducted from 3 December 2019 with the commencement of on site inductions for survey personnel and the commencement of seismic line preparation (vegetation clearing). Line preparation (vegetation clearing) was completed on 17 December 2019. The on ground survey acquisition component of the survey was completed in February 2020. Consequently, ongoing activities associated with the seismic survey are limited to rehabilitation monitoring, and (if required) rehabilitation works and reporting. There is currently no requirement for active rehabilitation activities, however these activities may be required in the future if rehabilitation monitoring indicates that regeneration of native vegetation on the survey lines is not meeting the required completion criteria. Further information on the rehabilitation monitoring is provided in Section 3.2.

3.2 Rehabilitation Monitoring

A rehabilitation monitoring methodology was developed and approved for the project in November 2018.

The initial rehabilitation monitoring survey was undertaken between 12 and 15 August 2019. The purpose of the survey was to establish analogue sites prior to vegetation clearing.

The inaugural post survey rehabilitation monitoring event was conducted between 19 and 23 October 2020. The results of this rehabilitation monitoring event were provided in the 2021 Annual Compliance Report EPBC 2017/8133.

The second post survey rehabilitation monitoring event was conducted between the 3 and 6 October 2022. Monitoring during 2022 indicated the rehabilitation transects are meeting set completion criteria at the 24-month targets with minimal impact having taken place on source and receiver lines within the Trieste 3D seismic survey area. The only exception is transect 9R which did not meet completion criteria for foliage cover. It is expected that this transect will likely pass these criteria with increasing time and should be reviewed following the 2024 assessment. Future monitoring periods should demonstrate recovery of the vegetation community toward that of the analogue sites.

Transect 11S failed to meet foliage cover criteria during rehabilitation monitoring in 2020 (Mattiske Consulting 2020). In 2022 following further passive rehabilitation transect 11S exceeded the criteria for native foliage cover, indicating time not active intervention is necessary for vegetation recovery along the Trieste 3D Seismic disturbance transects. Further detail on the results of this monitoring event are provided in Appendix C of this report.

3.3 Regulatory Compliance Management

EPBC Approval Condition 2 '*To minimise the impacts of the action on EPBC Act listed species, the approval holder must implement condition 8 of the Western Australian Clearing Permit (8171/1) for the life of the approval from the commencement of the action*' refers to the WA Clearing Permit issued by the Department of Mines, Industry Regulation and Safety (DMIRS) Native Vegetation Branch. Condition 8b of the Clearing Permit requires:

> *(b) At least once in each 12-month period for the term of this Permit, the Permit Holder must remove or kill any weeds growing within areas cleared under this Permit*

Ongoing activities at the survey area have been restricted to rehabilitation monitoring and associated reporting requirements, with the potential for active rehabilitation works if required. Monitoring at the site includes biennial rehabilitation monitoring. To date, no active weed control activities have taken place within areas cleared. As discussed in section 3.2 rehabilitation monitoring undertaken by a suitably qualified third party has indicated that all sights are on track to meet the completion criteria and are currently meeting completion criteria regarding weed foliage cover.

During these monitoring events small annual weed species have been identified within the survey area, however, none of the observed weeds are either Weeds of National Significance (WoNS) or declared pests and completion criteria for weed foliage cover are being met. As demonstrated in previous annual reports, all weed hygiene commitments were compliantly implemented during clearing operations and, as such, these annual weeds are unlikely to be attributable to Beach activities. This compliant weed hygiene implementation was independently verified by DMIRS during their 2021 inspection of the survey area.

Beach sought advice through the commissioning of two independent desktop reports (JBS&G 2020 and Mattiske 2023) to confirm the origin of the annual weed species identified and if applicable, appropriate actions to address their presence. The reports advised that annual weed species observed via rehabilitation monitoring to date, are 'disturbance opportunists' and, given the site's regional context, their establishment was inevitable post clearing. Additionally, over time as native species and their foliage cover increases, these annual weed species are likely to be outcompeted. Given

the above, the reports concluded that the best environmental outcome for the site is to allow observed weeds to be naturally outcompeted via a continuation of passive rehabilitation.

The Trieste project area consists of 379.1 kms of lines and given its large-scale Beach strongly believes that the weed management condition applied is inappropriate and unachievable. The only viable method of '*removing all weeds*' from the project area would be via a large-scale chemical weed control operation, which would likely result in unintentional weed overspray that may impact sensitive adjacent native species and compromise completion criteria. Furthermore, although not considered practical, should manual methods be used, this would present risks through additional weed establishment caused by ground disturbance from the physical removal of the plants and personnel walking through the project area. This position is supported by the above-mentioned independent desktop reports.

In 2023, following engagement with the DMIRS NVB and DCCEEW, Beach applied to amend the clearing permit requirement of condition 8b proposing to substitute Condition 8 (b) of the NVCP to align with the standard weed control condition (as per Beharra Springs Operations NVCP 6643), specifically:

> *When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of weeds:*
>
> *(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;*
>
> *(b) ensure that no known weed-affected soil, mulch, fill or other material is brought into the area to be cleared; and*
>
> *(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.*

During their assessment of this application DMIRS Native Vegetation Brach (NVB) requested further written justification regarding direct weed control not being proposed by Beach in future per condition 8b. Despite independent, specialist advice that weed species do not currently pose a threat to completion criteria and that optimal environmental outcomes would be achieved through a continuation of passive rehabilitation, Beach nevertheless has committed to undertaking a weed control program in 2024. Beach will work with an expert third party to design the program which shall be designed to maximise environmental outcomes for the site, specifically:

- Targeting weed species that pose a threat to native 'species richness' and 'foliage cover' completion criteria. Particular emphasis will be given to identifying weed 'hotspots' where relative weed abundance is high. From engagement with DMIRS NVB, it appears there is consensus that removing absolutely 'all weeds', which includes any non-indigenous plant, over the entire project area (379.1 line kms) is operationally infeasible
- Weed eradication methods shall be appropriate for the location and proportionate to the nature and scale of the observed threat
- Weed eradication methods shall not be employed in certain locations if there is strong evidence to suggest they may compromise the achievement of completion criteria through weed overspray or other undesirable consequences.

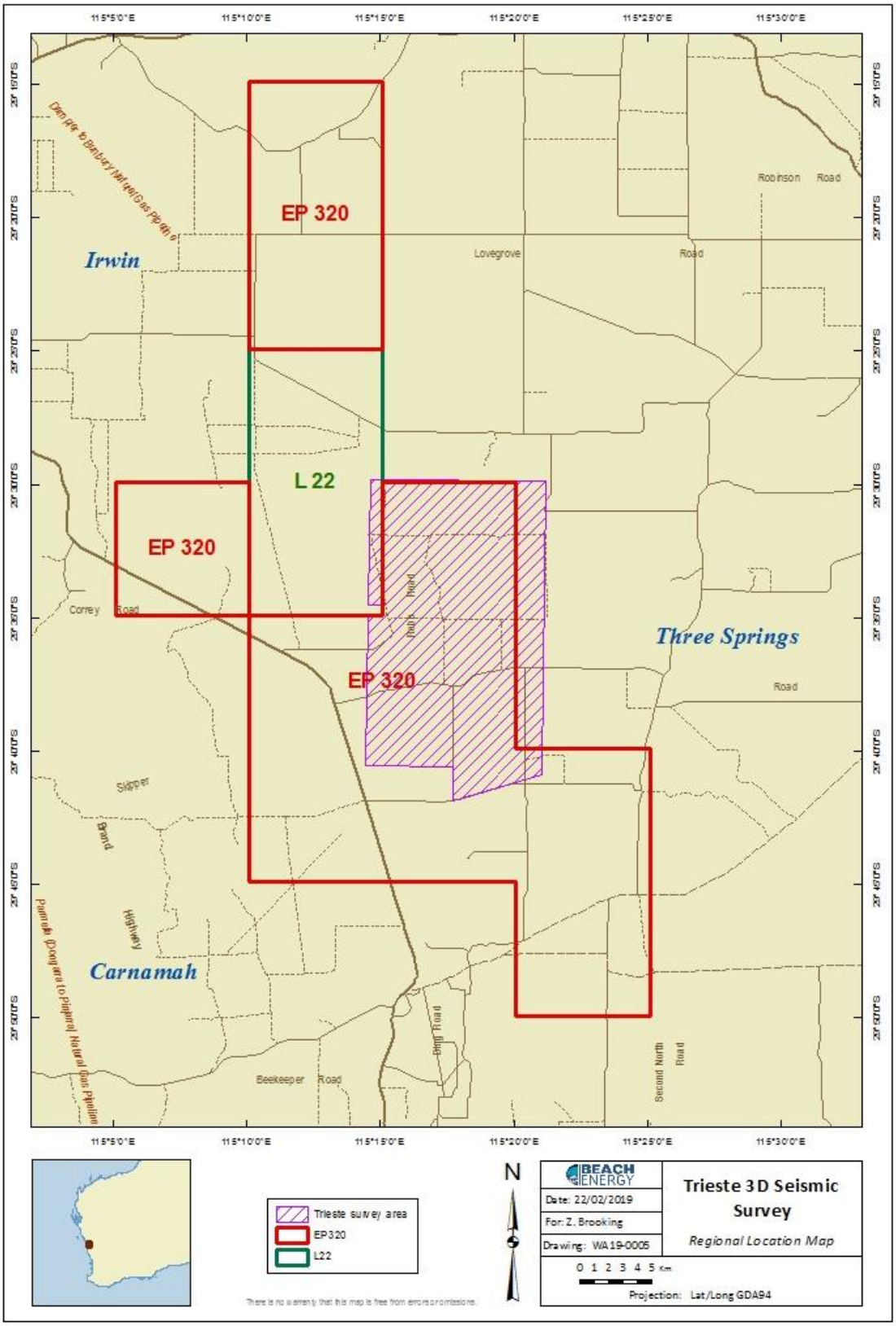


Figure 1: Trieste 3D Seismic Survey location

4 Assessment of Compliance with EPBC 2017 / 8133 Conditions

A summary of compliance against the thirteen conditions of approval defined in the approved EPBC 2017/8133 EPBC, for this reporting period, is provided in Table 1.

Table 1: Compliance with EPBC 2017/8133 Approval Conditions (as issued 12 February 2021)

Condition Number / Reference	EPBC 2017/8133 Condition	Compliance	Evidence / Comments
Part A – Conditions specific to the action			
1	The approval holder must not clear more than 54.36 ha of **foraging habitat** for the **Carnaby's Black Cockatoo** within the survey boundary (map at Attachment A).	Not applicable	The on ground survey acquisition component of the survey was completed in February 2020. As a consequence ongoing activities associated with the seismic survey are limited to rehabilitation monitoring, and (if required) rehabilitation works and reporting. Native vegetation clearing for the project occurred between the 03/12/2019 and 17/12/2019. The EPBC Approval and the WA Department of Mines, Industry, Regulation and Safety (DMIRS) Clearing Permit CPS 8171/1 allowed for clearing of up to 74.45 ha of native vegetation however a total of 54.36 ha was cleared for the project. Evidence that no more than 54.36 ha of foraging habitat for the Carnaby's Black Cockatoo was cleared within the survey boundary was provided in the 2020 Compliance Report EPBC 2017/8133.
2	To minimise the impacts of the action on **EPBC Act listed species**, the approval holder must implement condition 8 of the **Western Australian Clearing Permit (8171/1)** for the life of the approval from the **commencement of the action.**	Partially Compliant	**Condition 8** of the WA Clearing Permit (8171/1) refers to Dieback and Weed Control. **Condition 8 (a)** specifies steps that must be undertaken to minimise the risk of the introduction and spread of weeds and dieback. The only project personnel and vehicles to enter the project area since the demobilisation of the seismic crew on 15 February 2020 have been ecological consultants undertaking the rehabilitation monitoring event in October 2020 and October 2022. The consultants utilised pre-existing access tracks in the survey area and did not drive on any undisturbed areas while completing this monitoring. **Condition 8 (b) At least once in each 12 month period for the term of this Permit, the Permit Holder must remove or kill any weeds growing within areas cleared under this Permit.** As detailed in section 3.3 Beach submitted an application to amend the clearing permit requirement of condition 8b proposing to substitute Condition 8 (b) of the NVCP to align with the standard weed control condition (as per Beharra Springs Operations NVCP 6643). Beach engaged with DMIRS NVB in 2023 regarding their assessment of the amendment application and as a result have committed to undertaking a weed control program in 2024. Please see section 3.3 for further detail.
3	To minimise the impacts of the action on **foraging habitat** for the **Carnaby's Black Cockatoo**, the approval holder must implement condition 10 (relating to rehabilitation) of the **Western Australian Clearing Permit (8171/1)**. The objective of	Compliant	**Condition 10 of the WA Clearing Permit (8171/1) refers to Retain and spread vegetation material and topsoil and rehabilitation.**

Condition Number / Reference	EPBC 2017/8133 Condition	Compliance	Evidence / Comments
	rehabilitation works is to re-establish a self-sustaining vegetation cover, integrated with the surrounding ecosystem, providing **foraging habitat** for the **Carnaby's Black Cockatoo**		**Condition 10 (a) retain the vegetative material removed by clearing for the seismic survey authorised under this Permit and stockpile the vegetative material in an area that has already been cleared;** The on ground survey acquisition component of the survey was completed in February 2020. As a consequence ongoing activities associated with the seismic survey are limited to rehabilitation monitoring, and (if required) rehabilitation works and reporting. Native vegetation clearing for the project occurred between the 03/12/2019 and 17/12/2019. The EPBC Approval and the WA Department of Mines, Industry, Regulation and Safety (DMIRS) Clearing Permit CPS 8171/1 allowed for clearing of up to 74.45 ha of native vegetation however a total of 54.36 ha was cleared for the project. Evidence of compliance with Condition 10 (a) of the Clearing Permit was provided in the 2020 Compliance Report EPBC 2017/8133. **Condition 10 (b) within 12 months following clearing authorised for the seismic survey under this permit, *revegetate* and *rehabilitate* the areas that are no longer required, by:** **Condition 10 (b(i)) laying the vegetative material retained under Condition 10(a).** **Condition 10 (c) implement adequate measures to prevent third party access to survey lines and access tracks;** Evidence of compliance with Condition 10 (b) of the Clearing Permit was provided in the 2020 Compliance Report EPBC 2017/8133. **Condition 10 (d) Conduct monitoring in accordance with the document 'Mattiske, 2018. Proposed Seismic Line Rehabilitation Monitoring Methodology, Beharra Springs. Prepared by Mattiske Consulting Pty Ltd for Beach Energy, October 2018'.** Mattiske Consulting completed biennial rehabilitation monitoring survey between 19-23 October 2020 and again between 3-6 October 2022 in accordance with the approved rehabilitation monitoring method.
3a	The approval holder must continue rehabilitation works until the **Department** has provided written acceptance of a report by a **suitably qualified person** certifying and providing evidence that all of the **completion criteria** have been met	Compliant	Rehabilitation works currently consist of rehabilitation monitoring as per Condition 10 (d) of the WA Clearing Permit (8171/1). There is currently no requirement for active rehabilitation works to be undertaken in the project area. The requirement for rehabilitation works will be determined following the conclusion of the initial 5 year rehabilitation monitoring period. In the event that the rehabilitation monitoring program indicates that regeneration of vegetation on seismic lines is not meeting the required completion criteria, then Beach will determine the next course of action to achieve completion criteria. Beach will continue to undertake monitoring by a suitably qualified person until the cleared area has met the completion criteria
3b	Following submission to the **Department** of the certified report demonstrating that **the completion criteria** have been achieved	Compliant	-

Condition Number / Reference	EPBC 2017/8133 Condition	Compliance	Evidence / Comments
	in accordance with condition 3(a), the **suitably qualified expert** must monitor the rehabilitation area at least once every two years, during spring, for the life of the approval with sufficient effort to reliably ascertain whether the **completion criteria** continue to be met or exceeded		
3c	If the monitoring undertaken in accordance with condition 3(b) determines that any of the **completion criteria** are no longer being met, the approval holder must, within 3 months of becoming aware that any of the **completion criteria** are no longer being met, commence undertaking corrective actions and continue these until the **Department** has provided written acceptance of a report by **a suitably qualified person** certifying and providing evidence that all the **completion criteria** have again been met	Not applicable	-
4	To compensate for the loss of up to 54.36 ha of **foraging habitat** for the **Carnaby's Black Cockatoo**, the approval holder must provide an offset of 338 ha within Lot 10333 Watheroo Road, Boothendarra (map at Attachment B) and, by 3 May 2021:	Not applicable	Beach provided an offset of 338ha within Lot 10333 Watheroo Road, Boothendarra by 3 May 2021. Evidence of this was provided in the 2021 Compliance Report EPBC 2017/8133.
4a	provide written evidence to the Department that a financial contribution has been made to DBCA for the purchase, and management for the period of effect of approval, of the offset specified in condition 4; and	Not applicable	Written evidence of financial contribution made to DBCA for purchase and management of the offset was provided in the 2021 Compliance Report EPBC 2017/8133.
4b	provide the **Department** with the offset attributes, **shapefiles**, textual descriptions and maps to clearly define the location and boundaries of the offset.	Not applicable	Evidence that Beach provided the Department with offset attributes, shapefiles, textural descriptions and maps were presented in the 2020 Compliance Report EPBC 2017/8133. Additional evidence was also provided in the 2021 Compliance Report EPBC 2017/8133.
Part B – Standard administrative conditions			
Notification of date of commencement of the action			
5	The approval holder must notify the **Department** in writing of the date of **commencement of the action** within 10 **business days** after the date of **commencement of the action**	Not applicable	Evidence that Beach advised the Department that it had commenced the seismic survey on 5 December 2019 was provided in the 2020 Compliance Report EPBC 2017/8133.
6	If the **commencement of the action** does not occur within 5 years from the date of this approval, then the approval holder must not **commence the action** without the prior written agreement of the **Minister**	Not applicable	-

Compliance Report EPBC 2017/8133

Condition Number / Reference	EPBC 2017/8133 Condition	Compliance	Evidence / Comments
Annual Compliance Reporting			
7	The approval holder must prepare a **compliance report** for each 12 month period following the date of **commencement of the action**, or as otherwise agreed to in writing by the **Minister.** The approval holder must:	Compliant	This report addresses this requirement. The Annual Compliance Report will continue to be submitted annually unless otherwise agreed in writing by the Minister.
7a	publish each **compliance report** on the **website** within 20 **business days** following the relevant 12 month period;	Compliant	A copy of this report has been published on the Beach website.
7b	notify the **Department** by email that a **compliance report** has been published on the **website** within five **business days** of the date of publication, and provide a link to the published report;	Compliant	Beach will notify the Department within 5 business days of publication on the Beach website.
7c	keep all **compliance reports** publicly available on the **website** until this approval expires;	Compliant	
7d	exclude or redact **sensitive ecological data** from **compliance reports** published on the **website**; and	Compliant	Information on the location of conservation significant taxa detected in the project area during the 2022 rehabilitation monitoring event has been excluded from the Rehabilitation Assessment report provided in Appendix C.
7e	where any **sensitive ecological data** has been excluded from the version published, submit the **full compliance** report to the **Department** within 5 **business days** of publication	Compliant	
Reporting Non-compliance			
8a	The approval holder must notify the **Department** in writing of any: **incident**; non-compliance with the conditions; or non-compliance with the commitments made in **plans**. The notification must be given as soon as practicable, and no later than two **business days** after becoming aware of the **incident** or non-compliance. The notification must specify: the condition which is or may be in breach;	Compliant	No Incidents occurred in the reporting period Since 2022 Beach has been engaging with DMIRS NVB and DCCEEW regarding amendment to condition EPBC Approval Condition 2 'To minimise the impacts of the action on EPBC Act listed species, the approval holder must implement condition 8 of the Western Australian Clearing Permit (8171/1) for the life of the approval from the commencement of the action'. Please see section 3.3 for further detail.
8b	a short description of the **incident** and/or non-compliance; and		
8c	the location (including co-ordinates), date and time of the incident and/or non-compliance.		
9	The approval holder must provide to the **Department** the details of any **incident** or noncompliance with the conditions or	Compliant	No Incidents occurred in the reporting period

Compliance Report EPBC 2017/8133

Condition Number / Reference	EPBC 2017/8133 Condition	Compliance	Evidence / Comments
	commitments made in **plans** as soon as practicable and no later than **10 business day**s after becoming aware of the **incident** or non-compliance, specifying:		
9a	any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;		
9b	the potential impacts of the **incident** or non-compliance; and		
9c	the method and timing of any remedial action that will be undertaken by the approval holder		
Independent Audit			
10	The approval holder must ensure that **independent audits** of compliance with the conditions are conducted as requested in writing by the **Minister.**	Compliant	No independent audits were requested by the minister during the reporting period.
11	For each **independent audit**, the approval holder must:		
11a	provide the name and qualifications of the independent auditor and the draft audit criteria to the **Department;**	Compliant	-
11b	only commence the **independent audit** once the audit criteria have been approved in writing by the **Department;** and	Compliant	-
11c	submit an audit report to the **Department** within the timeframe specified in the approved audit criteria	Compliant	-
12	The approval holder must publish the audit report on the **website** within 10 **business days** of receiving the **Department**'s approval of the audit report and keep the audit report published on the **website** until the end date of this approval	Compliant	-
Completion of the Action			
13	Within 30 days after the **completion of the action**, the approval holder must notify the **Department** in writing and provide **completion data**	Not applicable	The on ground survey acquisition component of the survey was completed in February 2020. As a consequence ongoing activities associated with the seismic survey are limited to rehabilitation monitoring, and (if required) rehabilitation works and reporting.

5 Identification of New or Increased Environmental Risks

No new or increased risks have been identified in the reporting period. The on-ground acquisition phase of the seismic survey is now complete. Given that the seismic survey is complete, the likelihood of future incidents is extremely low as the only future activity associated with the project planned to occur on site is routine annual rehabilitation monitoring.

6 Reference List

Trieste Rehabilitation Invasive Flora Review. JBS&G. June 2022

Review of Weed Control Conditions on the Trieste Seismic Line project. Mattiske Consulting. December 2023

Rehabilitation Assessment Trieste 3D Seismic Project, Arrowsmith. Mattiske Consulting. February 2023

Rehabilitation Assessment Trieste 3D Seismic Project, Arrowsmith. Mattiske Consulting. January 2021

7 Document information and history

Document custodian group

Title	Name/s
HSE&R - Environment	Tim Flowers

Stakeholders

Position	Name
Head of Environment	Tim Flowers
Lead Environmental Advisor SAWA	John Stamatiou

Document history

Rev	Date	Changes made in first document	Reviewer/s	Consolidator	Approver
A	13/12/2023	Draft issued for internal review	John Stamatiou	Pearl Catford	-
0	15/12/2023	Approved for submission to DCCEEW	John Stamatiou	-	Tim Flowers

Appendix A Approval Notice and Conditions

APPROVAL

Trieste 3D Seismic Survey, near Eneabba, Western Australia (EPBC 2017/8133)

This decision is made under sections 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*. Note that section 134(1A) of the **EPBC Act** applies to this approval, which provides in general terms that if the approval holder authorises another person to undertake any part of the action, the approval holder must take all reasonable steps to ensure that the other person is informed of any conditions attached to this approval, and that the other person complies with any such condition.

Details

Person to whom the approval is granted (approval holder)	Lattice Energy Limited
ACN or ABN of approval holder	007 845 338
Action	To undertake an onshore three-dimensional (3D) seismic survey near Eneabba in the North Perth Basin, mapping geological formations to assist in the search for conventional gas reserves [See EPBC Act referral 2017/8133].

Proposed Approval decision

My decision on whether or not to approve the taking of the action for the purposes of the controlling provision for the action is as follows.

Controlling Provisions

Listed Threatened Species and Communities	
Section 18	Approve
Section 18A	Approve

Period for which the approval has effect

This approval has effect until 1 September 2034.

Decision-maker

Name and position	Chris Videroni A/g Assistant Secretary Assessments (WA, SA, NT) and Post Approval Branch
Signature	
Date of decision	11-10-2019

Conditions of approval

This approval is subject to the conditions under the EPBC Act as set out in ANNEXURE A.

ANNEXURE A – CONDITIONS OF APPROVAL

Part A – Conditions specific to the action

1. The approval holder must not clear more than 74.539 ha of **foraging habitat** for the **Carnaby's Black Cockatoo** within the survey boundary (map at Attachment A).
2. To minimise the impacts of the action on **EPBC Act listed species**, the approval holder must implement condition 8 of the **Western Australian Clearing Permit (8171/1)** for the life of the approval from the **commencement of the action**.
3. To minimise the impacts of the action on **foraging habitat** for the **Carnaby's Black Cockatoo**, the approval holder must implement condition 10 (relating to rehabilitation) of the **Western Australian Clearing Permit (8171/1)**. The objective of rehabilitation works is to re-establish a self-sustaining vegetation cover, integrated with the surrounding ecosystem, providing **foraging habitat** for the **Carnaby's Black Cockatoo**.
    a. The approval holder must continue rehabilitation works until the **Department** has provided written acceptance of a report by a **suitably qualified person** certifying and providing evidence that all of the **completion criteria** have been met.
    b. Following submission to the **Department** of the certified report demonstrating that the **completion criteria** have been achieved in accordance with condition 3(a), the **suitably qualified expert** must monitor the rehabilitation area at least once every two years, during spring, for the life of the approval with sufficient effort to reliably ascertain whether the **completion criteria** continue to be met or exceeded.
    c. If the monitoring undertaken in accordance with condition 3(b) determines that any of the **completion criteria** are no longer being met, the approval holder must, within 3 months of becoming aware that any of the **completion criteria** are no longer being met, commence undertaking corrective actions and continue these until the **Department** has provided written acceptance of a report by a **suitably qualified person** certifying and providing evidence that all the **completion criteria** have again been met.
4. To compensate for the loss of up to 74.539 ha of **foraging habitat** for the **Carnaby's Black Cockatoo**, the approval holder must:
    a. Within one year of the **commencement of the action** submit to the **Minister** for approval:
        i. details of an offset that includes a minimum of 218.46 ha of **foraging habitat** for the **Carnaby's Black Cockatoo.** The approval holder must demonstrate that the proposed offset meets the principles of the **Department's EPBC Environmental Offsets Policy**
        ii. an Offset Management Plan for the proposed offset provided in accordance with condition 4(a)(i). The Offset Management Plan must include time-bound performance targets, completion criteria, details of a monitoring program, management actions, corrective actions and triggers for corrective actions to be undertaken in the event that performance targets have not been met.
    b. Within two years of the **commencement of the action**, provide written evidence to the **Department** that a financial contribution of at least $104, 860.80 has been made to an **approved conservation fund** for the purchase and ongoing management of the approved offset required by condition 4(a).
    c. Provide the **Department** with the offset attributes, **shapefiles**, textual descriptions and maps to clearly define the location and boundaries of the offset site(s).

Part B – Standard administrative conditions

Notification of date of commencement of the action

5. The approval holder must notify the **Department** in writing of the date of **commencement of the action** within 10 **business days** after the date of **commencement of the action**.

6. If the **commencement of the action** does not occur within 5 years from the date of this approval, then the approval holder must not **commence the action** without the prior written agreement of the **Minister**.

Annual compliance reporting

7. The approval holder must prepare a **compliance report** for each 12 month period following the date of **commencement of the action**, or as otherwise agreed to in writing by the **Minister**. The approval holder must:

   a. publish each **compliance report** on the **website** within 20 **business days** following the relevant 12 month period;

   b. notify the **Department** by email that a **compliance report** has been published on the **website** within five **business days** of the date of publication, and provide a link to the published report;

   c. keep all **compliance reports** publicly available on the **website** until this approval expires;

   d. exclude or redact **sensitive ecological data** from **compliance reports** published on the **website**; and

   e. where any **sensitive ecological data** has been excluded from the version published, submit the full **compliance report** to the **Department** within 5 **business days** of publication.

Note: **Compliance reports** may be published on the **Department**'s website.

Reporting non-compliance

8. The approval holder must notify the **Department** in writing of any: **incident;** non-compliance with the conditions; or non-compliance with the commitments made in **plans**. The notification must be given as soon as practicable, and no later than two **business days** after becoming aware of the **incident** or non-compliance. The notification must specify:

   a. the condition which is or may be in breach;

   b. a short description of the **incident** and/or non-compliance; and

   c. the location (including co-ordinates), date and time of the incident and/or non-compliance.

9. The approval holder must provide to the **Department** the details of any **incident** or non-compliance with the conditions or commitments made in **plans** as soon as practicable and no later than 10 **business days** after becoming aware of the **incident** or non-compliance, specifying:

   a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;

   b. the potential impacts of the **incident** or non-compliance; and

   c. the method and timing of any remedial action that will be undertaken by the approval holder.

Independent audit

10. The approval holder must ensure that **independent audits** of compliance with the conditions are conducted for the 12 month period from **commencement of the action** and for every subsequent 12 month period, or as otherwise requested in writing by the **Minister**.

11. For each **independent audit**, the approval holder must:

a. provide the name and qualifications of the independent auditor and the draft audit criteria to the **Department**;

b. only commence the **independent audit** once the audit criteria have been approved in writing by the **Department**; and

c. submit an audit report to the **Department** within the timeframe specified in the approved audit criteria.

12. The approval holder must publish the audit report on the **website** within 10 **business days** of receiving the **Department's** approval of the audit report and keep the audit report published on the **website** until the end date of this approval.

Completion of the action

13. Within 30 days after the **completion of the action**, the approval holder must notify the **Department** in writing and provide **completion data**.

Part C - Definitions

In these conditions, except where contrary intention is expressed, the following definitions are used:

Approved conservation fund is a conservation fund approved by the **Department** for the purpose of providing long-term management and improvement of **foraging habitat** for the **Carnaby's Black Cockatoo**.

Business days means a day that is not a Saturday, a Sunday or a public holiday in the state or territory of the action.

Carnaby's Black Cockatoo means the EPBC Act listed Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*).

Clear means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of vegetation.

Commencement of the action means the first instance of any specified activity associated with the action including clearance of vegetation and **construction** of any infrastructure. **Commencement of the action** does not include minor physical disturbance necessary to:

i. undertake pre-clearance surveys or monitoring programs;

ii. install signage and /or temporary fencing to prevent unapproved use of the project area;

iii. protect environmental and property assets from fire, weeds and feral animals, including erection or **construction** of fencing and signage, and maintenance or use of existing surface access tracks, if agreed in writing by the **Department**; and

Completion criteria are the completion criteria identified in Mattiske Consulting Pty Ltd (2018) *Proposed seismic line rehabilitation monitoring methodology*.

Completion data means an environmental report and spatial data information clearly detailing how the conditions of this approval have been met. The **Department's** preferred spatial data format is shapefile.

Completion of the action means all specified activities associated with the action have permanently ceased.

Compliance records means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder's possession or that are within the approval holder's power to obtain lawfully.

Compliance reports means written reports:

i. providing accurate and complete details of compliance, **incidents**, and non-compliance with these approval conditions and commitments in the **plans**;

ii. details of contingency measures or corrective actions that have been or will be implemented;

iii. consistent with the **Department's** *Annual Compliance Report Guidelines* (2014);

iv. include a shapefile of any clearance of any **protected matters**, or their habitat, undertaken within the relevant 12 month period; and

v. annexing a schedule of all **plans** prepared and in existence in relation to the conditions during the relevant 12 month period.

Construction means the erection of a building or structure that is or is to be fixed to the ground and wholly or partially fabricated on-site; the alteration, maintenance, repair or demolition of any building or structure; preliminary site preparation work which involves breaking of the ground (including pile driving); the laying of pipes and other prefabricated materials in the ground, and any associated excavation work; but excluding the installation of fences and signage.

Department means the Australian Government agency responsible for administering the **EPBC Act**.

Department's EPBC Act Environmental Offsets Policy means the Department of Sustainability, Environment, Water, Population and Communities (2012) *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* available on the Department's website at: http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

EPBC Act listed species means the EPBC Act listed Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*), Sandplain Duck Orchid (*Paracleana dixonii*), Star Sun Orchid (*Thelymitra stellata*) and Yandanooka Mallee (*Eucalyptus crispata*).

EPBC Regulations means the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth).

Foraging habitat means foraging habitat for the **Carnaby' Black Cockatoo** as identified in the Department of Sustainability, Environment, Water, Population and Communities (2012) *EPBC Act referral guidelines for three threatened black cockatoo species* available on the Department's website at: http://www.environment.gov.au/biodiversity/threatened/publications/epbc-act-referral-guidelines-three-threatened-black-cockatoo-species-carnabys-cockatoo

Incident means any event which has the potential to, or does, impact on **protected matter(s)**.

Independent audit: means an audit conducted by an independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines* (2015).

Monitoring data means the data required to be recorded under the conditions of this approval.

Minister means the Australian Government Minister administering the **EPBC Act** including any delegate thereof.

Plan(s) means any of the documents required to be prepared, approved by the **Minister**, and/or implemented by the approval holder and published on the **website** in accordance with these conditions (includes action management plans and/or strategies).

Protected matter means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

Sensitive ecological data means data as defined in the Australian Government Department of the Environment (2016) *Sensitive Ecological Data – Access and Management Policy V1.0.*

Shapefile means location and attribute information of the action provided in an Esri shapefile format. Shapefiles must contain '.shp', '.shx' , '.dbf' files and a '.prj' file that specifies the projection/geographic coordinate system used. Shapefiles must also include an '.xml' metadata file that describes the shapefile for discovery and identification purposes.

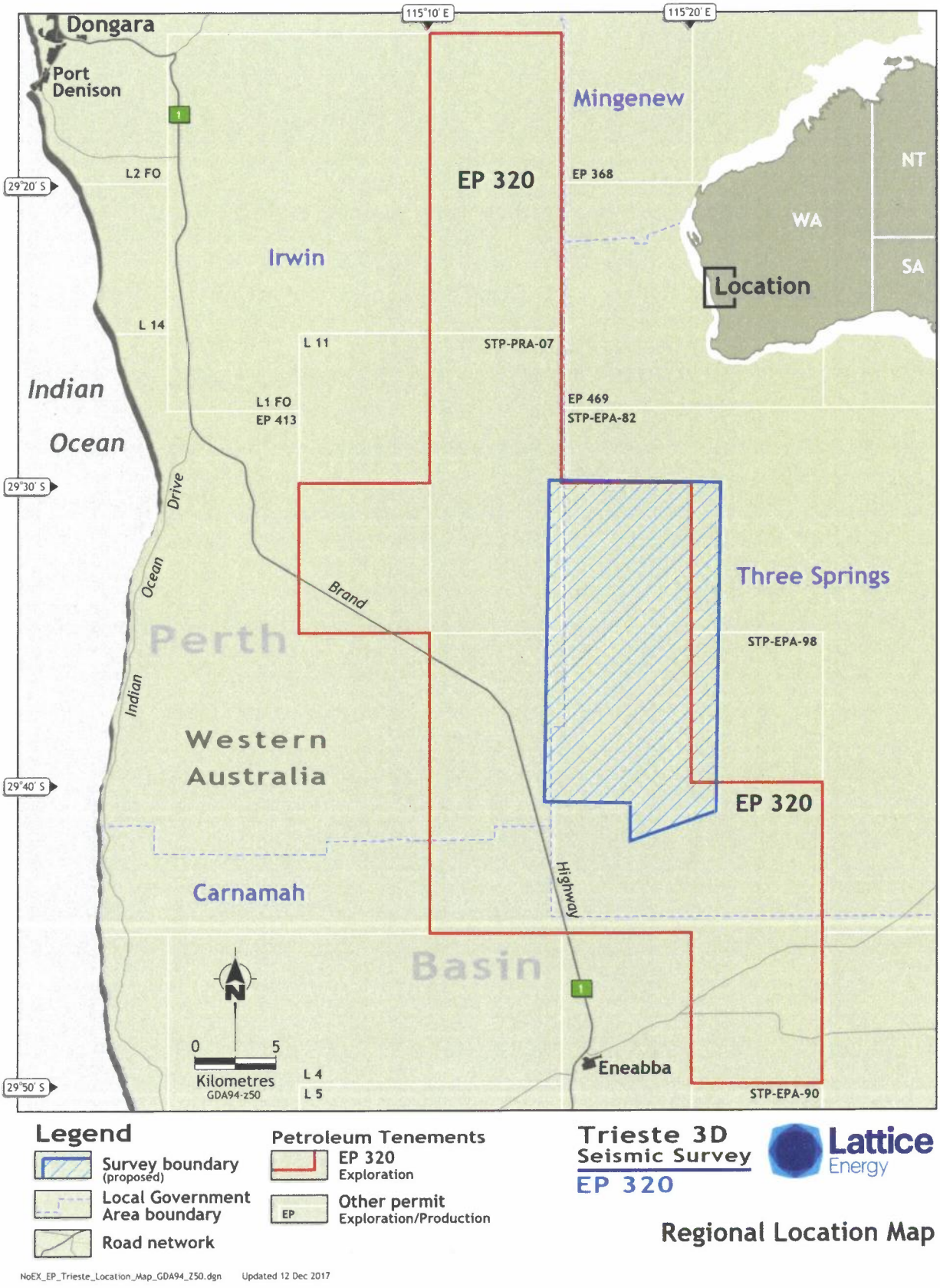
Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

Website means a set of related web pages located under a single domain name attributed to the approval holder and available to the public.

Western Australian Clearing Permit (8171/1) means the Western Australian Clearing Permit (8171/1) granted by the Government of Western Australia under section 51E of the *Environment Protection Act 1986 (WA)* on 9 May 2019.

ATTACHMENTS

1. **Attachment A: Map of survey boundary**



Appendix B Variation of EPBC Conditions

Australian Government
Department of Agriculture, Water and the Environment

VARIATION OF CONDITIONS ATTACHED TO APPROVAL
Trieste 3D Seismic Survey, near Eneabba, Western Australia (EPBC 2017/8133)

This decision to vary conditions of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Approved action

Person to whom the approval is granted	Lattice Energy Limited ACN: 007 845 338
Approved action	To undertake an onshore three-dimensional (3D) seismic survey near Eneabba in the North Perth Basin, mapping geological formations to assist in the search for conventional gas reserves [See EPBC Act referral 2017/8133]

Variation

Variation of conditions attached to approval	The variation is: Delete conditions 1, 4 and 10 attached to the approval and substitute with the conditions specified in the table below. Add new definitions of DBCA specified in the table below.
Date of effect	This variation has effect on the date the instrument is signed.

Person authorised to make decision

Name and position	Declan O'Connor-Cox Assistant Secretary Assessments (Vic, Tas) and Post Approvals Branch
Signature	
Date of decision	12 February 2021

Date of decision	Part A - Conditions specific to the action
As varied on the date this instrument was signed	1. The approval holder must not clear more than 54.36 ha of **foraging habitat** for the **Carnaby's Black Cockatoo** within the survey boundary (map at Attachment A).
Original dated 11/02/2019	2. To minimise the impacts of the action on **EPBC Act listed species,** the approval holder must implement condition 8 of the **Western Australian Clearing Permit (8171/1)** for the life of the approval from the **commencement of the action.**
Original dated 11/02/2019	3. To minimise the impacts of the action on **foraging habitat** for the **Carnaby's Black Cockatoo,** the approval holder must implement condition 10 (relating to rehabilitation) of the **Western Australian Clearing Permit (8171/1).** The objective of rehabilitation works is to re-establish a self-sustaining vegetation cover, integrated with the surrounding ecosystem, providing **foraging habitat** for the **Carnaby's Black Cockatoo.** a. The approval holder must continue rehabilitation works until the **Department** has provided written acceptance of a report by a **suitably qualified person** certifying and providing evidence that all of the **completion criteria** have been met. b. Following submission to the **Department** of the certified report demonstrating that the **completion criteria** have been achieved in accordance with condition 3(a), the **suitably qualified expert** must monitor the rehabilitation area at least once every two years, during spring, for the life of the approval with sufficient effort to reliably ascertain whether the **completion criteria** continue to be met or exceeded. c. If the monitoring undertaken in accordance with condition 3(b) determines that any of the **completion criteria** are no longer being met, the approval holder must, within 3 months of becoming aware that any of the **completion criteria** are no longer being met, commence undertaking corrective actions and continue these until the **Department** has provided written acceptance of a report by a **suitably qualified person** certifying and providing evidence that all the **completion criteria** have again been met.
As varied on the date this instrument was signed	4. To compensate for the loss of up to 54.36 ha of **foraging habitat** for the **Carnaby's Black Cockatoo,** the approval holder must provide an offset of 338 ha within Lot 10333 Watheroo Road, Boothendarra (map at Attachment B) and, by 3 May 2021: a. provide written evidence to the **Department** that a financial contribution has been made to **DBCA** for the purchase, and management for the period of effect of approval, of the offset specified in condition 4; and b. provide the **Department** with the offset attributes, **shapefiles,** textual descriptions and maps to clearly define the location and boundaries of the offset.

Date of decision	Part B – Standard administrative conditions
Original dated 11/02/2019	**Notification of date of commencement of the action** 5. The approval holder must notify the **Department** in writing of the date of **commencement of the action** within 10 **business days** after the date of **commencement of the action.**
Original dated 11/02/2019	6. If the **commencement of the action** does not occur within 5 years from the date of this approval, then the approval holder must not **commence the action** without the prior written agreement of the **Minister.**
Original dated 11/02/2019	**Annual compliance reporting** 7. The approval holder must prepare a **compliance report** for each 12 month period following the date of **commencement of the action,** or as otherwise agreed to in writing by the **Minister.** The approval holder must: a. publish each **compliance report** on the **website** within 20 **business days** following the relevant 12 month period; b. notify the **Department** by email that a **compliance report** has been published on the **website** within five **business days** of the date of publication, and provide a link to the published report; c. keep all **compliance reports** publicly available on the **website** until this approval expires; d. exclude or redact **sensitive ecological data** from **compliance reports** published on the **website;** and e. where any **sensitive ecological data** has been excluded from the version published, submit the full **compliance report** to the **Department** within 5 **business days** of publication. **Note: Compliance reports** may be published on the **Department's** website.
Original dated 11/02/2019	**Reporting non-compliance** 8. The approval holder must notify the **Department** in writing of any: **incident;** non-compliance with the conditions; or non-compliance with the commitments made in **plans.** The notification must be given as soon as practicable, and no later than two **business days** after becoming aware of the **incident** or non-compliance. The notification must specify: a. the condition which is or may be in breach; b. a short description of the **incident** and/or non-compliance; and c. the location (including co-ordinates), date and time of the incident and/or non-compliance.
Original dated 11/02/2019	9. The approval holder must provide to the **Department** the details of any **incident** or non- compliance with the conditions or commitments made in **plans** as soon as practicable and no later than 10 **business days** after becoming aware of the **incident** or non-compliance, specifying: a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future; b. the potential impacts of the **incident** or non-compliance; and c. the method and timing of any remedial action that will be undertaken by the approval holder.

Date of decision	Part B – Standard administrative conditions
As varied on the date this instrument was signed	**Independent audit** 10. The approval holder must ensure that **independent audits** of compliance with the conditions are conducted as requested in writing by the **Minister.**
Original dated 11/02/2019	11. For each **independent** audit, the approval holder must: a. provide the name and qualifications of the independent auditor and the draft audit criteria to the **Department**; b. only commence the independent audit once the audit criteria have been approved in writing by the **Department;** and c. submit an audit report to the **Department** within the timeframe specified in the approved audit criteria.
Original dated 11/02/2019	12. The approval holder must publish the audit report on the **website** within 10 **business days** of receiving the **Department's** approval of the audit report and keep the audit report published on the **website** until the end date of this approval.
Original dated 11/02/2019	**Completion of the action** 13. Within 30 days after the **completion of the action,** the approval holder must notify the **Department** in writing and provide **completion data.**

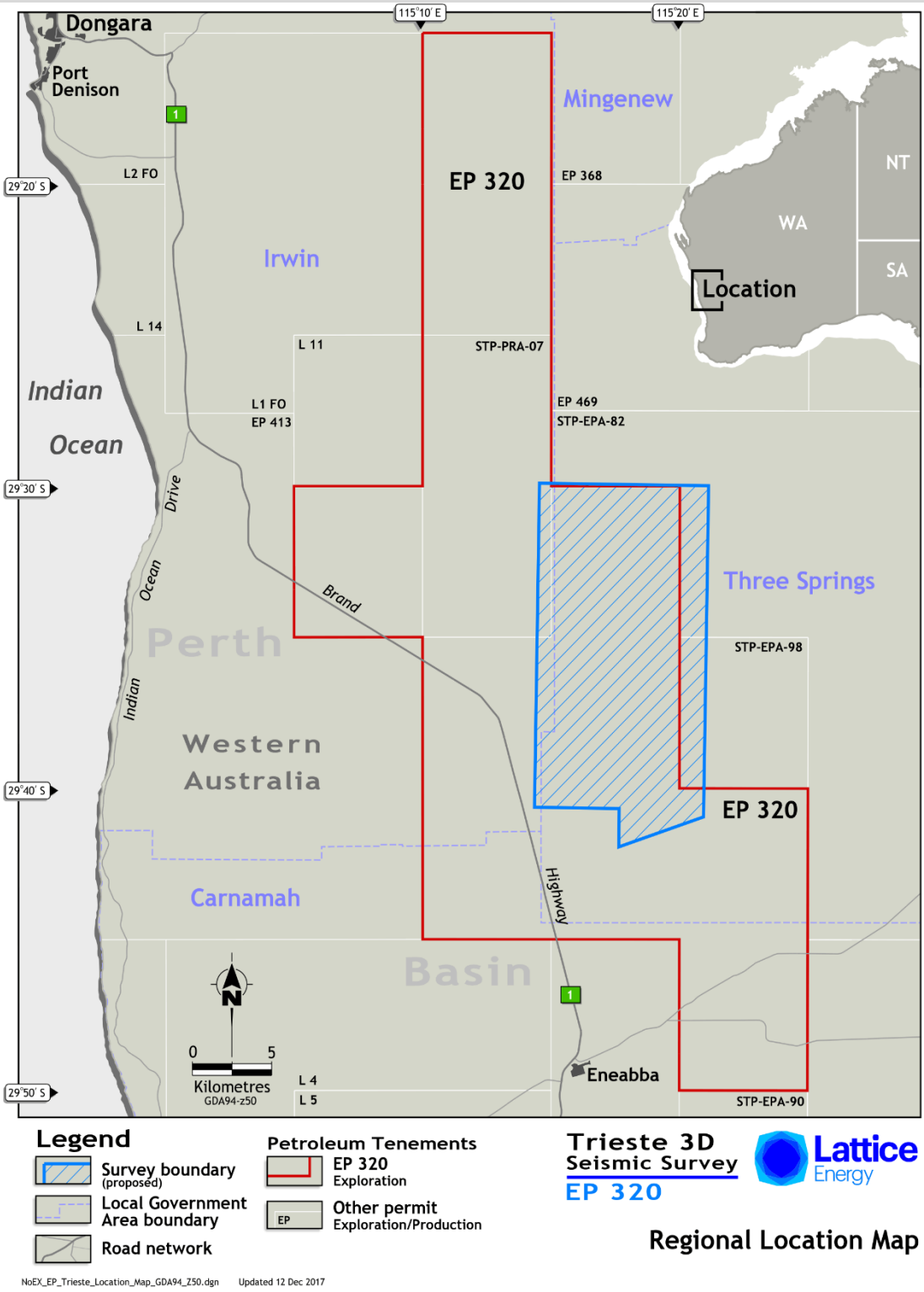
Date of decision	Part C - Definitions attached to approval
Original dated 11/02/2019	In these conditions, except where contrary intention is expressed, the following definitions are used: **Approved conservation fund** is a conservation fund approved by the **Department** for the purpose of providing long-term management and improvement of **foraging habitat** for the **Carnaby's Black Cockatoo.**
Original dated 11/02/2019	**Business days** means a day that is not a Saturday, a Sunday or a public holiday in the state or territory of the action.
Original dated 11/02/2019	**Carnaby's Black Cockatoo** means the EPBC Act listed Carnaby's Black Cockatoo (*Calyptorhynchus latirostris).*
Original dated 11/02/2019	**Clear** means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of vegetation.
Original dated 11/02/2019	**Commencement of the action** means the first instance of any specified activity associated with the action including clearance of vegetation and **construction** of any infrastructure. **Commencement of the action** does not include minor physical disturbance necessary to: i. undertake pre-clearance surveys or monitoring programs; ii. install signage and /or temporary fencing to prevent unapproved use of the project area; and iii. protect environmental and property assets from fire, weeds and feral animals, including erection or **construction** of fencing and signage, and maintenance or use of existing surface access tracks, if agreed in writing by the **Department.**
Original dated 11/02/2019	**Completion criteria** are the completion criteria identified in Mattiske Consulting Pty Ltd (2018). *Proposed seismic line rehabilitation monitoring methodology.*

Date of decision	Part C - Definitions attached to approval
Original dated 11/02/2019	**Completion data** means an environmental report and spatial data information clearly detailing how the conditions of this approval have been met. The **Department's** preferred spatial data format is shapefile.
Original dated 11/02/2019	**Completion of the action** means all specified activities associated with the action have permanently ceased.
Original dated 11/02/2019	**Compliance records** means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder's possession or that are within the approval holder's power to obtain lawfully.
Original dated 11/02/2019	**Compliance reports** means written reports: i. providing accurate and complete details of compliance, **incidents,** and non-compliance with these approval conditions and commitments in the **plans;** ii. details of contingency measures or corrective actions that have been or will be implemented; iii. consistent with the **Department's** *Annual Compliance Report Guidelines* (2014); iv. include a shapefile of any clearance of any **protected matters,** or their habitat, undertaken within the relevant 12 month period; and v. annexing a schedule of all **plans** prepared and in existence in relation to the conditions during the relevant 12 month period.
Original dated 11/02/2019	**Construction** means the erection of a building or structure that is or is to be fixed to the ground and wholly or partially fabricated on-site; the alteration, maintenance, repair or demolition of any building or structure; preliminary site preparation work which involves breaking of the ground (including pile driving); the laying of pipes and other prefabricated materials in the ground, and any associated excavation work; but excluding the installation of fences and signage.
As varied on the date this instrument was signed	**DBCA** means the Western Australian Department of Biodiversity, Conservation and Attractions.
Original dated 11/02/2019	**Department** means the Australian Government agency responsible for administering the **EPBC Act.**
Original dated 11/02/2019	**Department's EPBC Act Environmental Offsets Policy** means the Department of Sustainability, Environment, Water, Population and Communities (2012) *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* available on the Department's website at: http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy
Original dated 11/02/2019	**EPBC Act** means the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).
Original dated 11/02/2019	**EPBC Act listed species** means the EPBC Act listed Carnaby's Black Cockatoo *(Calyptorhynchus latirostris),* Sandplain Duck Orchid *(Paracleana dixonii),* Star Sun Orchid *(Thelymitra stellata)* and Yandanooka Mallee *(Eucalyptus crispata).*
Original dated 11/02/2019	**EPBC Regulations** means the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth).

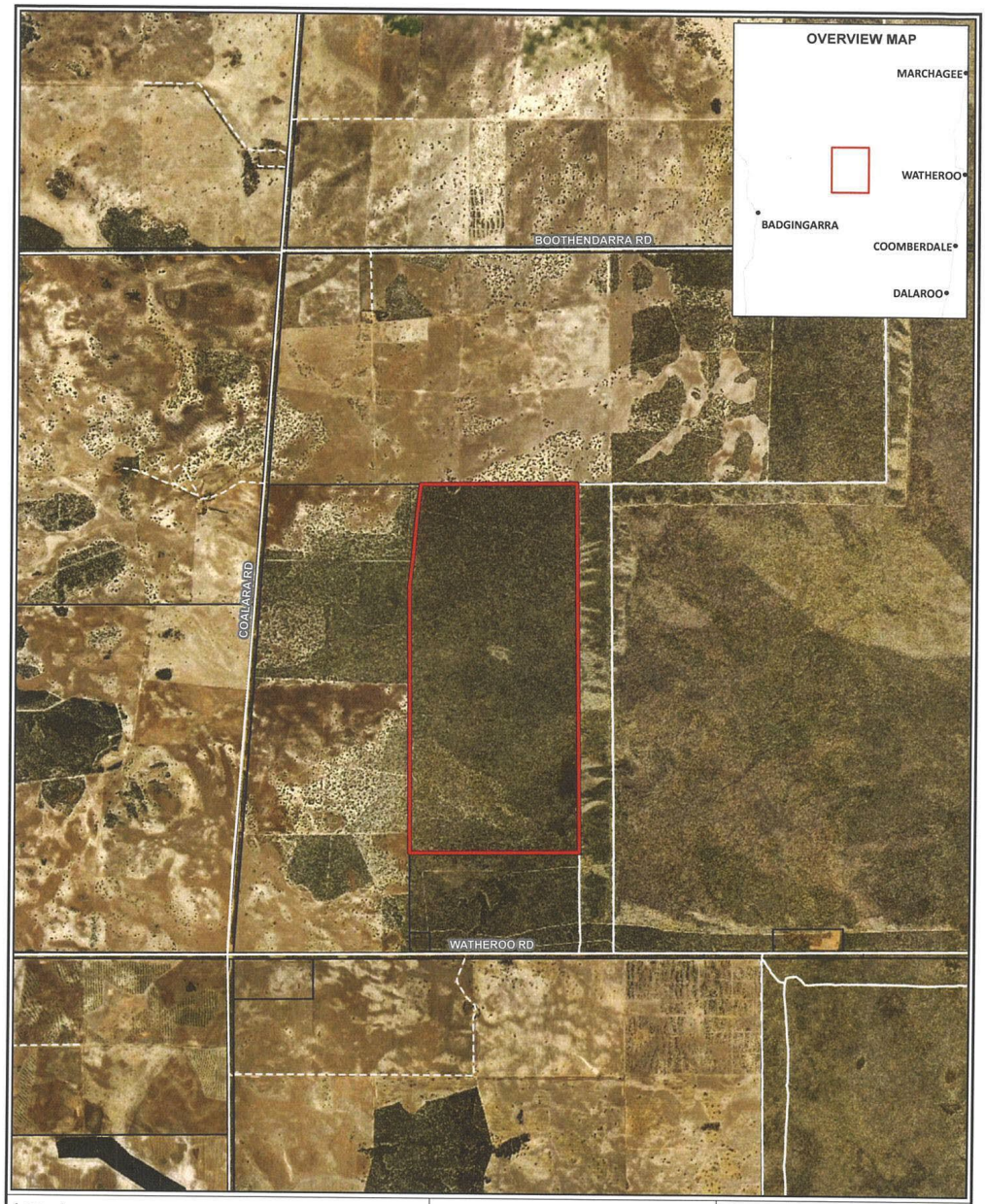
Date of decision	Part C - Definitions attached to approval
Original dated 11/02/2019	**Foraging habitat** means foraging habitat for the **Carnaby' Black Cockatoo** as identified in the Department of Sustainability, Environment, Water, Population and Communities (2012) *EPBC Act referral guidelines for three threatened black cockatoo species* available on the Department's website at: http://www.environment.gov.au/biodiversity/threatened/publications/epbc-act-referral-guidelines-three-threatened-black-cockatoo-species-carnabys-cockatoo
Original dated 11/02/2019	**Incident** means any event which has the potential to, or does, impact on **protected matter(s).**
Original dated 11/02/2019	**Independent audit:** means an audit conducted by an independent and **suitably qualified person** as detailed in the *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines* (2015).
Original dated 11/02/2019	**Monitoring data** means the data required to be recorded under the conditions of this approval.
Original dated 11/02/2019	**Minister** means the Australian Government Minister administering the **EPBC Act** including any delegate thereof.
Original dated 11/02/2019	**Plan(s)** means any of the documents required to be prepared, approved by the **Minister,** and/or implemented by the approval holder and published on the **website** in accordance with these conditions (includes action management plans and/or strategies).
Original dated 11/02/2019	**Protected matter** means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.
Original dated 11/02/2019	**Sensitive ecological data** means data as defined in the Australian Government Department of the Environment (2016) Sensitive Ecological Data – Access and Management Policy V1.0
Original dated 11/02/2019	**Shapefile** means location and attribute information of the action provided in an Esri shapefile format. Shapefiles must contain '.shp', '.shx', '.dbf' files and a '.prj' file that specifies the projection/geographic coordinate system used. Shapefiles must also include an '.xml' metadata file that describes the shapefile for discovery and identification purposes.
Original dated 11/02/2019	**Suitably qualified person** means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.
Original dated 11/02/2019	**Website** means a set of related web pages located under a single domain name attributed to the approval holder and available to the public.
Original dated 11/02/2019	**Western Australian Clearing Permit (8171/1)** means the Western Australian Clearing Permit (8171/1) granted by the Government of Western Australia under section 5IE of the *Environment Protection Act 1986 (WA)* on 9 May 2019.

Date of decision
Original dated 11/02/2019

Attachment A: Map of survey boundary



Date of decision	**Attachment B: Map of survey boundary**
As varied on the date this instrument was signed	ATTACHMENT B



Appendix C 2022 Rehabilitation Assessment, Trieste 3D Seismic Project, Arrowsmith

Rehabilitation Assessment Trieste 3D Seismic Project, Arrowsmith. Prepared by Mattiske Consulting Pty Ltd for Beach Energy Ltd, February 2023

REHABILITATION ASSESSMENT

TRIESTE 3D SEISMIC PROJECT,

Prepared By

Mattiske Consulting Pty Ltd

Prepared For

Beach Energy Limited

Date

February 2023

DOCUMENT STATUS				
DOCUMENT REFERENCE: BEP2201/034/2022				
VERSION	**TYPE**	**AUTHOR/S**	**REVIEWER/S**	**DATE DISTRIBUTED**
V1	Internal review	L. Ducki	E.M. Mattiske	10/01/2023
V2	Draft for client	L. Ducki	E.M. Mattiske	11/01/2023
V3	Updates, client comments	L. Ducki	E.M. Mattiske	08/02/2023
V4	Final Report	L. Ducki	E.M. Mattiske	22/02/2023

Mattiske Consulting Pty Ltd

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LIST OF ABBREVIATIONS

BAM Act:	*Biosecurity and Agriculture Management Act 2007* (WA)
BC Act:	*Biodiversity Conservation Act 2016* (WA)
BOM:	Bureau of Meteorology
DCCEEW:	Department of Climate Change, Energy, the Environment and Water
DBCA:	Department of Biodiversity, Conservation and Attractions
DPaW:	Department of Parks and Wildlife (now under DBCA)
DPIRD:	Department of Primary Industries and Regional Development (includes Agriculture and Food)
EP Act:	*Environmental Protection Act 1986* (WA)
EPA:	Environmental Protection Authority
EPBC Act:	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
IBRA:	Interim Biogeographical Regionalisation for Australia
MCPL:	Mattiske Consulting Pty Ltd
WAH:	Western Australian Herbarium (PERTH)
WAOL:	Western Australian Organism List
WC Act:	*Wildlife Conservation Act 1950* (WA) (superseded by BC Act as of 01 January 2010)

EXECUTIVE SUMMARY

Mattiske Consulting Pty Ltd was commissioned in August 2022 by Beach Energy Limited to undertake the 2022 monitoring in October2022 of the established rehabilitation transects and analogue transects within the Trieste 3D Seismic Project area. This report summarises the trends over time on these respective transects in the context of assessing the progress of rehabilitation on the Trieste 3D Seismic project area.

The Trieste 3D Seismic Project area lies east of the Brand Highway between the towns Eneabba and Dongara, Western Australia. A large portion of the Trieste 3D Seismic Project area is on Unallocated Crown Land. The focus area includes both rehabilitation and analogue areas. As a result, transects were established to evaluate impact and recovery of native vegetation along proposed Source and Receiver lines. In October 2020, eleven rehabilitation and one analogue transect were established and monitored along with ten analogue transects previously established in 2019 in the Trieste 3D Seismic Project area.

A total of 323 vascular plant taxa, representative of 127 genera and 49 families, were recorded within the Trieste 3D Seismic Project area transects during 2022 monitoring. The majority of taxa recorded were representative of the Proteaceae (46 taxa), Myrtaceae (42 taxa) and Fabaceae (29 taxa) families. No Threatened flora species pursuant to pursuant to Part 2, Division 1, Subdivision 2 of the BC Act and as listed by Department of Biodiversity, Conservation and Attractions, or pursuant to section 179 of the EPBC Act or listed by the Department of Climate Change, Energy, the Environment and Water, were recorded within the Trieste 3D Seismic Project area transects. Ten Priority flora species were recorded within the Trieste 3D Seismic survey area transects during 2022 monitoring. One Priority 1 taxa (*Tricoryne soullierae*), six Priority 3 taxa (*Banksia fraseri* var. *crebra*, *Hemiandra* sp. Eneabba (H. Demarz 3687), *Hypocalymma gardneri*, *Mesomelaena stygia* subsp. *deflexa*, *Persoonia ?filiformis* and *Stylidium drummondianum*) and three Priority 4 taxa (*Banksia scabrella*, *Conostephium magnum* and *Schoenus griffinianus*) were recorded during October 2022 monitoring.

Key indicators of rehabilitation success including native species richness, native species foliage cover, no new introduction of declared or environmental weeds, stable landforms, lack of erosion evidence, and lack of evidence of dieback were assessed for the 11 analogue transects in the Trieste 3D Seismic survey area.

Species richness ranged from 20 to 28 taxa per transect. Across all 11 analogue transects an average species richness of 25.5 was recorded. All transects passed 12- and 24-month assessment criteria. Foliage cover of perennial native species in the 11 rehabilitation transects monitored in October 2022 ranged from 13.8% to 40.4% cover per transect. Foliage cover of perennial native species in the 11 analogue transects monitored in the Trieste 3D Seismic survey area in October 2022 ranged from 59.6% to 95% cover per transect. Of the 11 rehabilitation transects all passed the 24-month completion criteria target of 20% foliage cover of perennial species against their adjacent analogue transects except for transect 9R which fell short by 4.1%. Rehabilitation transect 9R failed to meet the 12-month completion criteria during the 2020 monitoring period. A total of nine introduced (weed) species were recorded during the October 2022 monitoring period, an increase since previous monitoring periods. All weed species recorded are permitted species pursuant to section 11 of the *Biosecurity and Agriculture Management Act 2007* and are not declared environmental weeds. The weeds were recorded within 8 rehabilitation transects and in six

quadrats along four analogue transects. All sites monitored passed visual assessments for stable landforms, lack of erosion evidence, and no impact by dieback.

The Trieste 3D Seismic area supports high conservation values with a high level of native species richness, native foliage cover, high numbers of priority listed taxa and lack of declared weed species. Monitoring during October 2022 has indicated that transects are meeting set completion criteria at the 24-month targets, with only transect 9R failing to meet the species foliage cover target. All measures have increased with time, suggesting that further monitoring at 5 years since disturbance will see all transects pass completion criteria.

Mattiske Consulting Pty Ltd have determined that an adjustment of the species richness completion criteria target, which is currently relatively conservative, should include an 80% species richness target at 5 years following disturbance. Current criteria appear to address measures of recovery adequately for the Trieste 3D Seismic Project. Irrespective of seasonal variation and different vegetation units, transects monitored within the Trieste 3D Seismic survey area are progressing toward analogue targets (e.g., completion criteria).

1. INTRODUCTION

Mattiske Consulting Pty Ltd (MCPL) was commissioned in August 2022 by Beach Energy Limited to undertake the 2022 monitoring of the rehabilitated and analogue transects established in 2020 within the Trieste 3D Seismic survey area. More specifically, this survey outlines the methodology and results from rehabilitation assessment conducted in October 2022 along and adjacent to Source and Receiver lines within the Trieste 3D Seismic Project area, located within EP320.

1.1. Location and Scope of Project

The Trieste 3D Seismic survey area lies within the Irwin Botanical District of the South-West Botanical Province (Beard 1990), east of the Brand Highway between the towns Eneabba and Dongara, Western Australia. The Trieste 3D Seismic Project covers 21,820 ha, and includes areas of native vegetation, a small portion of Nature Reserve (R 25495) and a section of the Arrowsmith River, with remnant vegetation patches and large areas on private properties (Figure 1). The Unallocated Crown Land (UCL; accessible by Correy Road) formed the focus area in which analogue transects were established in August 2019 to characterise the area and provide baseline information prior to disturbance by 3D Seismic survey along source and receiver line, which took place at the end of 2019 and beginning of 2020. In October 2020, rehabilitation transects were established in impacted sites adjacent to analogue transects to evaluate impact and recovery of native vegetation along Source and Receiver lines. Transects were assessed during October 2022. Assessing the progress of regrowth after seismic activities through comparisons with analogue sites can allow for progressive improvements and remedial actions to be undertaken in management practices.

1.2. Environmental Legislation and Guidelines

The following key Commonwealth (federal) legislation relevant to this survey is the:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The following key Western Australian (state) legislation relevant to this survey include the:

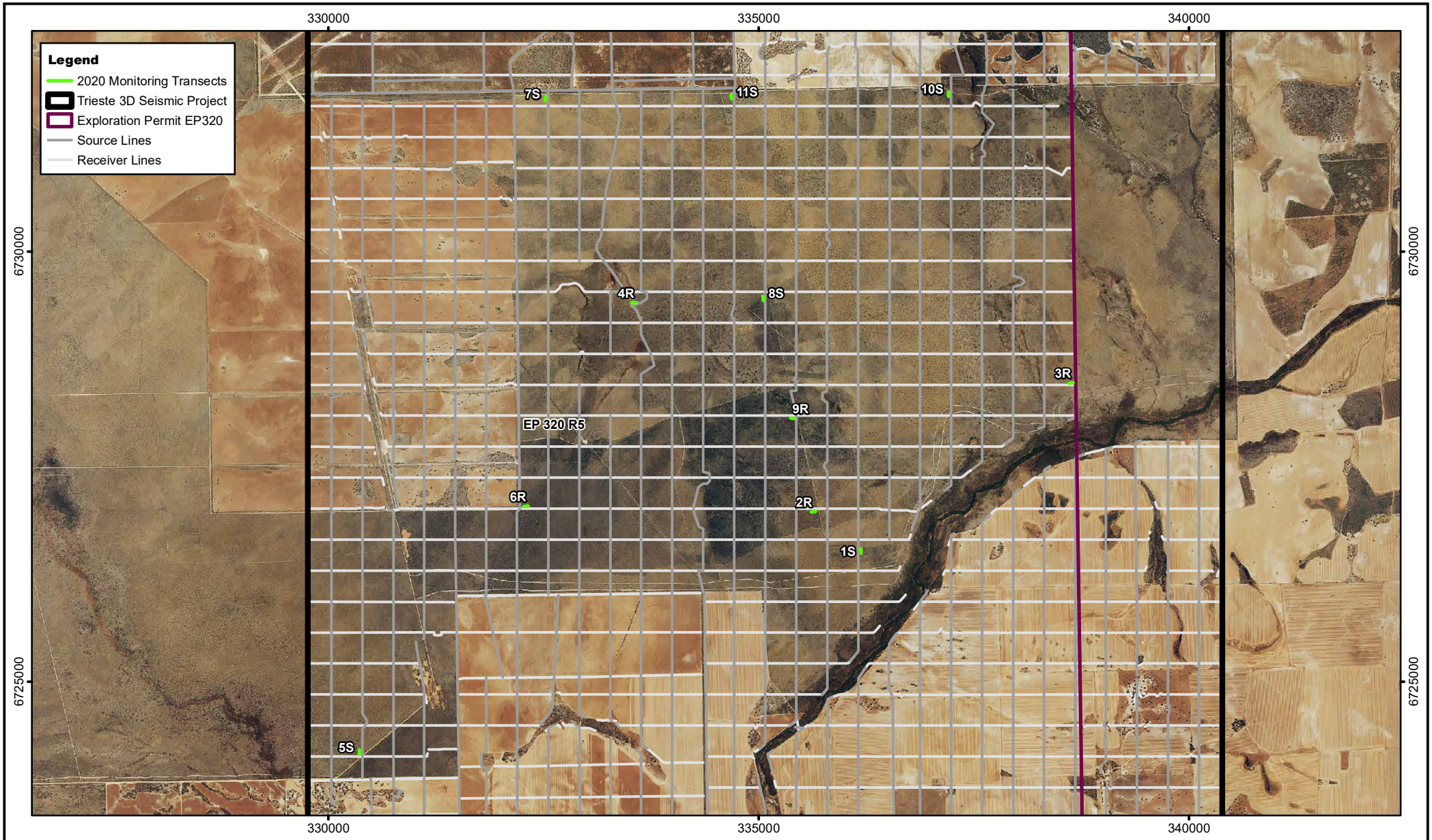
- *Biodiversity Conservation Act 2016* (BC Act);
- *Biosecurity and Agriculture Management Act 2007* (BAM Act); and
- *Environmental Protection Act 1986* (EP Act).

Furthermore, key Western Australian guidelines relevant to this survey are the:

- *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (Environmental Protection Authority [EPA] 2016a); and
- *Environmental Factor Guideline: Flora and Vegetation* (EPA 2016b).

Definitions of flora and vegetation terminology commonly used throughout this report are set out in Appendices A1 – A3.

Source:



Client: BEACH ENERGY

N

0 0.75 1.5km

Scale: 1:60,000
MGA94 (Zone 50)

CAD Ref: a2505F005

Date: December 2020 | Rev: A | A4

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda WA 6076 ~ Tel: 9257 1625 ~ Fax: 9257 1640
Author: E M Matttiske | MCPL Ref: BEP2002/028/20
Drawn: CAD Resources ~ www.cadresources.com.au
Tel: (08) 9246 3242 ~ Fax (08) 9246 3202

Trieste 3D Seismic Survey
Transects
December 2020

Figure: 1

2. BACKGROUND

2.1. Regional Context

The Trieste 3D Seismic survey area lies within the Irwin Botanical District of the South-West Botanical Province (Beard 1990). More recently, the vegetation of Western Australia has been assigned to bioregions and subregions under the Interim Biogeographical Regionalisation for Australia (IBRA), with the survey area being within the Lesueur Sandplain sub region of the Geraldton Sandplains Bioregion (DCCEEW 2022a).

2.2. Climate

Beard (1990) described the climate of the Northern Sandplains as dry, warm Mediterranean. The area has a winter precipitation of 300–500 mm and seven to eight dry months per year (Beard 1990). Rainfall and temperature data for Eneabba is no longer available due to the closing of the Eneabba weather station, therefore rainfall data from Green Grove and long-term temperature data from Carnamah are illustrated in Figure 2 (BOM 2023). Above average rainfall was recorded during the two months prior to the survey (August and September; 84.9 mm cf. 54 mm), while below average rainfall was recorded in the beginning of the wet season prior to the survey (May and June 2022; 54.6 mm cf. 89.95) (Figure 2). Similar patterns in rainfall are observed in the years preceding 2022 (Figure 2). Maximum and minimum temperature follow similar trends since the establishment of transects during 2019 (Figure 2).

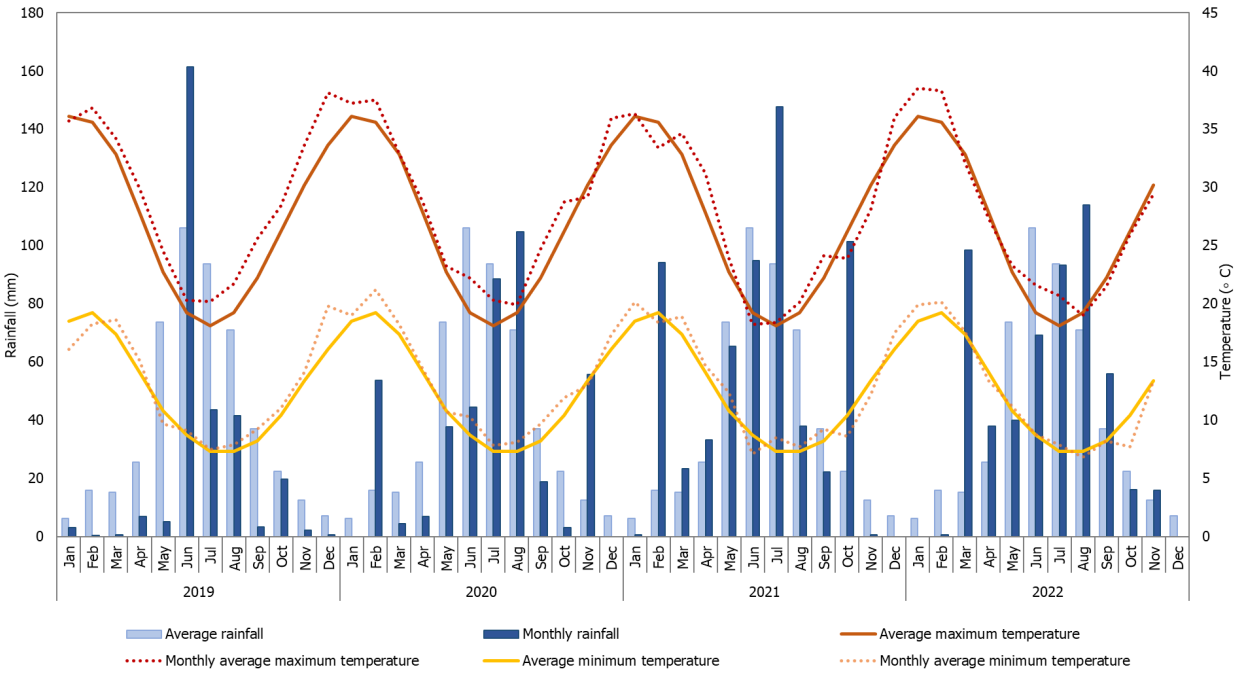


Figure 2: Rainfall and temperature data for Trieste 3D Seismic survey area

Note: Long-term average monthly rainfall (1951-2022) for Green Grove (Station 008057) and temperature (1940-2022) for Carnamah (Station 008025), together with monthly rainfall and temperature data between 2019 and 2022 (BOM 2023).

2.3. Soils and Topography

The Trieste 3D Seismic survey area is located within the Lesueur Sandplain sub region of the Geraldton Sandplains Bioregion (DCCEEW 2021). The system present in the 3D Seismic survey area is the Eridoon system, which occupies a flat coastal plain between coastal limestone deposits and the Pleistocene shoreline. The extensive, undulating, lateritic sandplains mantling Permian to Cretaceous strata (Desmond and Chant 2001), consist of yellow sand that has been blown into ridges, with lakes and swamps in the depressions (Beard 1976).

3. OBJECTIVES

The aim of this survey was to undertake flora and vegetation monitoring of transects within the Trieste 3D Seismic survey area to compare botanical values of rehabilitation areas with those of analogue sites. Specifically, the objectives were:

- Collect and identify vascular plant species present within analogue and rehabilitation transects established during previous survey years along source and receiver lines within the Trieste 3D Seismic survey area;
- Review the conservation status of the vascular plant species recorded by reference to current literature, current listings by the Department of Biodiversity Conservation and Attractions (DBCA 2017, 2022a, 2022b, 2022c), plant collections held at the Western Australian Herbarium (WAH 1998–), and listings by the Department of Climate Change, Energy, the Environment and Water under the EPBC Act (DCCEEW 2022b, 2022c);
- Review the management status of vascular plant species recorded with reference to the BAM Act and *Environmental Weed Strategy for WA* (DPIRD 2023, DPaW 2013);
- Assess each monitoring site for species richness, foliage cover, and presence of declared and environmental weed species;
- Assess the rehabilitation success against completion criteria and progress since the last survey; and,
- Prepare a report summarising the findings.

4. METHODS

4.1. Field Survey

Analogue transects were established during 2019 in the Trieste 3D Seismic survey area. Following establishment of analogue transects four experienced botanists from MCPL established rehabilitation transects in October 2020, and monitored these as well as the analogue transects. All transects have been established in accordance with methods outlined by the Environmental Protection Agencies (EPA) *Technical Guidance – Flora and vegetation surveys for environmental impact assessment* (EPA 2016a). All botanists held valid collection licences to collect flora for scientific purposes, issued under the BC Act.

Between October 3rd and October 6th 2022, eleven transects established along 3D Seismic survey disturbance source and receiver, as well as adjacent analogue transects, were monitored. This included 11 rehabilitation transects (6 along sources lines; 5 along receiver lines) and adjacent analogue transects within the Trieste 3D Seismic survey area. Transect 4R was relocated to the closest disturbed area, 2.3 km away from the transect monitored in August 2019, as no disturbance had taken place on the adjacent receiver line in that specific location (333341 E/ 6729920 N, GDA94_50J). Transect locations are displayed in Table 1 and displayed in Figure 1.

Table 1: Location of transects monitored in the Trieste 3D Seismic survey area, October 2022 (Note: S=source line, R=receiver line)

TRANSECT	TYPE	START (GDA94_50J)		END (GDA94_50J)	
		EASTING	NORTHING	EASTING	NORTHING
1S	Analogue	336184	6726494	336184	6726543
	Rehabilitation	336147	6726494	336149	6726542
2R	Analogue	335658	6726981	335610	6726968
	Rehabilitation	335593	6727009	335544	6727009
3R	Analogue	338652	6728473	338603	6728470
	Rehabilitation	338651	6728449	338604	6728451
4R	Analogue	333550	6729405	333596	6729420
	Rehabilitation	333554	6729381	333601	6729391
5S	Analogue	333557	6724153	330361	6724206
	Rehabilitation	330390	6724168	330390	6724215
6R	Analogue	332321	6727039	332269	6727038
	Rehabilitation	332313	6727008	332267	6727011
7S	Analogue	332522	6731800	332519	6731749
	Rehabilitation	332552	6731798	332554	6731749
8S	Analogue	335045	6729478	335052	6729430
	Rehabilitation	335075	6729508	335075	6729461
9R	Analogue	335412	6728058	335366	6728060
	Rehabilitation	335351	6728088	335302	6728089
10S	Analogue	337203	6731854	337202	6731802
	Rehabilitation	337234	6731821	337236	6731774
11S	Analogue	334678	6731821	334681	6731772
	Rehabilitation	334714	6731825	334716	6731778

Photographs taken at the start and end of each transect are displayed in Appendix B.

Key indicators of rehabilitation success were assessed for the 11 analogue transects in the Trieste 3D Seismic survey area; including, no new introduction of declared or environmental weeds, native species richness, native species foliage cover, stable landform, lack of soil erosion, and absence of dieback evidence.

All plant specimens collected during the field surveys were dried and processed in accordance with the requirements of the Western Australian Herbarium (WAH). The plant species were identified based on taxonomic literature and through comparison with pressed specimens housed at the WAH. Where appropriate, plant taxonomists with specialist skills were consulted. Nomenclature of the species recorded is in accordance with the WAH (1998–).

4.2. Sampling and Transect Design

Transect and quadrat methodology is specified below and displayed in Figure 3.

- Analogue transects were established in August 2019 parallel to Source and Receiver lines, 20 m away in representative vegetation.
- Rehabilitation transects were established in October 2020 in sites along source and receiver lines disturbed by 3D Seismic survey, 20 m away from analogue transects.
- Each 50 m transect made up of 10, 2 × 2 m quadrats spaced at 5 m intervals on the right-hand side of the transect. Photographs taken from the 'start' of transects (Appendix B; wooden or metal stakes indicate start and end points of each transect).

Parameters recorded at each transect included start and end GPS locations as well as photographs at each of end of the transects. Floristic parameters monitored within each 2 × 2 m quadrat included percentage of alive and dead foliage (vegetation) cover of each taxa, the number of alive and dead plants of each taxa, and average height of each taxa.

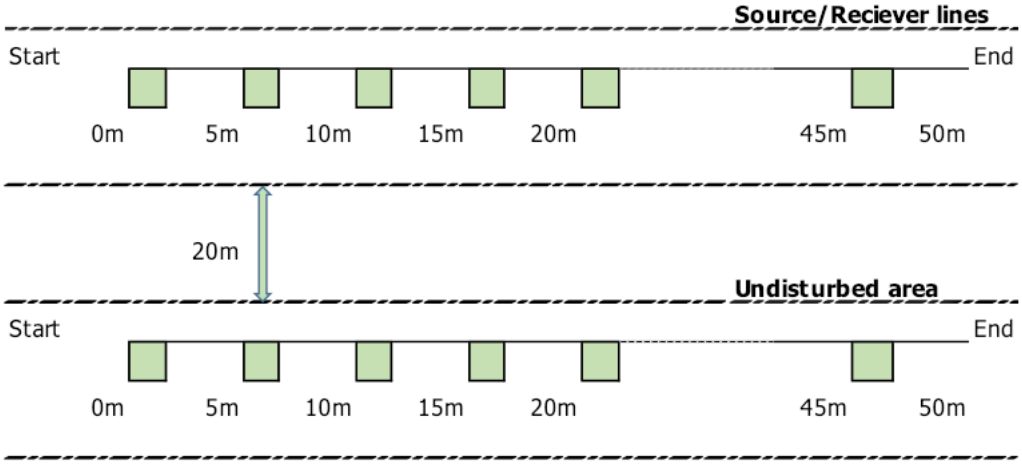


Figure 3: Layout of transects monitored in the Trieste 3D seismic survey area

4.3. Data analysis

Temporal and spatial comparisons were made between rehabilitation and analogue transects, including weed abundance and indicators of regrowth (species richness and foliage cover). The completion criteria are summarised in Table 2 below following the *Guidance Statement No. 6* (EPA 2006).

Table 2: Summary of the rehabilitation criteria for flora and vegetation

CRITERIA TO MEASURE[3]	COMPLETION CRITERIA TARGET
Weeds	No new introduction of declared[1] or environmental[2] weeds into operational areas within 12 months.
Perennial species richness	20% of perennial species richness compared with adjacent areas of native vegetation within 12 months. 40% of perennial species richness in adjacent areas of native vegetation within 24 months.
% Foliage cover of perennial species	10% foliage cover of perennial native species compared with adjacent areas of native vegetation within 12 months. 20% foliage cover of perennial native species compared with adjacent areas of native vegetation within 24 months. 40% foliage cover of perennial native species compared with adjacent areas of native vegetation within 5 years.
Dieback	No new introduction of fungal diseases (dieback).
Landforms	Maintenance of stable landforms, with minimal changes in landform.
Soils	No erosion channels more than 1 m long and 30 cm deep.

[1]Declared organism list (DPIRD 2023)
[2]Environmental Weed Ranking (DPaW 2013)
[3]Rehabilitation monitoring Methodology (Mattiske Consulting 2018)

5. FIELD SURVEY RESULTS

5.1. Flora

A total of 323 vascular plant taxa, representative of 127 genera and 49 families, were recorded within the Trieste 3D Seismic survey area transects during 2022 monitoring. The majority of taxa recorded were representative of the Proteaceae (46 taxa), Myrtaceae (42 taxa) and Fabaceae (29 taxa) families (see Appendix C for a complete species list).

5.1.1. Threatened and Priority Flora

No threatened flora species pursuant to Part 2, Division 1, Subdivision 2 of the BC Act and as listed by DBCA (2022b), or pursuant to section 179 of the EPBC Act or listed by the DCCEEW (2022b), were recorded within the Trieste 3D Seismic survey area transects during October 2022 monitoring.

Ten priority flora species, as listed by DBCA (2022b, 2022c) were recorded within the Trieste 3D Seismic survey area transects during 2022 monitoring (see Appendix D for numbers and locations). One Priority 1 taxa (*Tricoryne soullierae*), six Priority 3 taxa (*Banksia fraseri* var. *crebra*, *Hemiandra* sp. Eneabba (H. Demarz 3687), *Hypocalymma gardneri, Mesomelaena stygia* subsp. *deflexa*, *Persoonia* ?*filiformis* and *Stylidium drummondianum*) and three Priority 4 taxa (*Banksia scabrella*, *Conostephium magnum* and *Schoenus griffinianus*) were recorded during October 2022 monitoring. A brief description of these species is provided below.

PRIORITY ONE

***Tricoryne soullierae* (P1) – HEMEROCALLIDACEAE –** *Tricoryne soullierae* (P1) is a sprawling herb with a perennial rootstock. It has been recorded with yellow flowers in an umbel during October. This species has been found on rises and upper slopes in yellow sandy soils and has a restricted distribution in remnant vegetation in the northern wheatbelt (Macfarlane & Keighery, 2015). WAH houses 3 specimens of *Tricoryne soullierae* (P1) from the Avon Wheatbelt (WAH 1998-).

PRIORITY THREE

***Banksia fraseri* var. *crebra* (P3) – PROTEACEAE –** *Banksia fraseri* var. *crebra* (P3) is a shrub growing to 60 cm high. It produces yellow/green flowers and has been recorded as flowering in April to September. It grows in white, grey, yellow or red sand, gravel, laterite or granite. WAH houses 16 specimens of *Banksia fraseri* var. *crebra* (P3) from the Geraldton Sandplains and Swan Coastal Plain (WAH 1998–; Plate 1).

Plate 1: *Banksia fraseri* var. *crebra* (P3)

***Hemiandra* sp. Eneabba (H. Demarz 3687) (P3) – LAMIACEAE –** *Hemiandra* sp. Eneabba (H. Demarz 3687) (P3) is a straggly erect shrub growing to 90 cm high. It produces blue/violet flowers and has been recorded as flowering in February. It grows in yellow/grey sand on flat land sometimes associated with disturbance. WAH houses 33 specimens of *Hemiandra* sp. Eneabba (H. Demarz 3687) (P3) from the Geraldton Sandplains (WAH 1998–; Plate 2).

Plate 2: *Hemiandra* sp. Eneabba (H. Demarz 3687) (P3)

***Hypocalymma gardneri* (P3) – MYRTACEAE –** *Hypocalymma gardneri* (P3) is a shrub growing to 30 cm high. It produces yellow flowers and has been recorded as flowering in August to September. It grows in grey-brown sand and laterite on sandplains, upper slopes and heathland. WAH houses 22 specimens of *Hypocalymma gardneri* (P3) from the Geraldton Sandplains (WAH 1998–; Plate 3)

Plate 3: *Hypocalymma gardneri* (P3)

***Mesomelaena stygia* subsp. *deflexa* (P3) – CYPERACEAE –** *Mesomelaena stygia* subsp. *deflexa* (P3) is a tufted perennial sedge to 50 cm high. It produces brown-black flowers and has been recorded as flowering in March to October. It grows in white, grey or lateritic sand. WAH houses 29 specimens of *Mesomelaena stygia* subsp. *deflexa* (P3) from the Geraldton Sandplains (WAH 1998–; Plate 4).

Plate 4: *Mesomelaena stygia* subsp. *deflexa* (P3)

***Persoonia filiformis* (P3) – PROTEACEAE –** *Persoonia filiformis* (P3) is an erect spreading shrub to 40 cm high. It produces yellow flowers and has been recorded as flowering in November to December. It grows in yellow or white sand over laterite. WAH houses 23 specimens of *Persoonia filiformis* (P3) from the Geraldton Sandplains (WAH 1998–; Plate 5).

Plate 5: *Persoonia ?filiformis* (P3)

***Stylidium drummondianum* (P3) – STYLIDACEAE –** *Stylidium drummondianum* (P3) is a rosetted perennial herb to 25 cm high. It produces pink flowers and has been recorded as flowering in August to October. It grows in sand or clayey sand

over laterite on hillslopes and breakaways. WAH houses 36 specimens of *Stylidium drummondianum* (P3) from the Geraldton Sandplains and Avon Wheatbelt (WAH 1998–; Plate 6).

Plate 6: *Stylidium drummondianum* (P3)

PRIORITY FOUR

***Banksia scabrella* (P4) – PROTEACEAE –** *Banksia scabrella* (P4) is a lignotuberous shrub growing to 2 m high. It produces yellow/cream/purple flowers and has been recorded as flowering in September to January. It grows in white, grey or yellow sand, sometimes with lateritic gravel on sandplains and lateritic ridges. WAH houses 51 specimens of *Banksia scabrella* (P4) from the Geraldton Sandplains (WAH 1998–; Plate 7).

Plate 7: *Banksia scabrella* (P4)

***Conostephium magnum* (P4) – ERICACEAE –** *Conostephium magnum* (P4) is an erect multi-stemmed shrub growing to 2 m high. It produces pink-purple flowers and has been recorded as flowering in July to September. It grows in white-grey sand, sometimes associated with lateritic gravels in sand dunes, swampland, disturbed roadsides, drainage channels and open woodland. WAH houses 30 specimens of *Conostephium magnum* (P4) from the Geraldton Sandplains and Swan Coastal Plain (WAH 1998–).

***Schoenus griffinianus* (P4) – ERICACEAE –** *Schoenus griffinianus* (P4) is a small, tufted perennial grass-like herb sedge growing to 0.1 m high. It grows in white sand, typically in disturbed areas such as firebreaks in low heath. WAH houses 42 specimens of *Schoenus griffinianus* (P4) from the Geraldton Sandplains and Swan Coastal Plain (WAH 1998–; Plate 8).

Plate 8: *Schoenus griffinianus* (P4)

Four of the Priority taxa – *Banksia fraseri* var. *crebra* (P3), *Banksia scabrella* (P4), *Conostephium magnum* (P4), and *Persoonia filiformis* (P3) – were only recorded in analogue transects within the Trieste 3D Seismic survey area transects in October 2022 (Figure 4). The six Priority taxa were recorded in both analogue and rehabilitation transects in October 2020 (Figure 4); including *Hemiandra* sp. Eneabba (H. Demarz 3687) (P3), *Hypocalymma gardneri* (P3), *Mesomelaena stygia* subsp. *deflexa* (P3), *Stylidium*

drummondianum (P3), and *Tricoryne soullierae* (P1). *Schoenus griffinianus* (P4) was only recorded within rehabilitation transects (Figure 4).

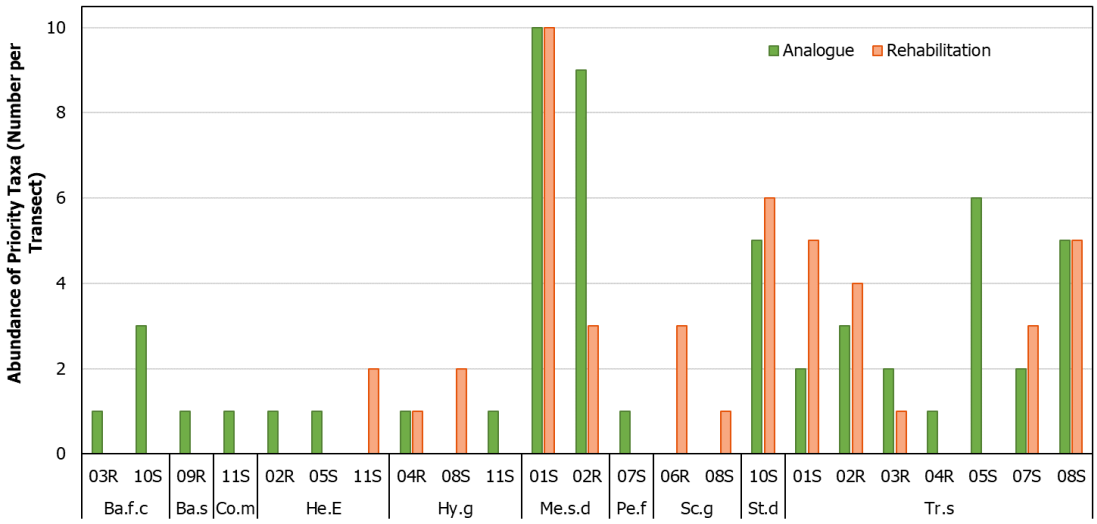


Figure 4: Number of Priority taxa recorded in monitored transects within the Trieste 3D seismic survey area, October 2022

Note: S=source line, R=receiver line. Ba.f.c=*Banksia fraseri* var. *crebra*, Ba.s=*Banksia scabrella*, Co.m.=*Conostephium magnum*, He.E=*Hemiandra* sp. Eneabba (H. Demarz 3687), Hy.g.=*Hypocalymma gardneri*, Me.s.d=*Mesomelaena stygia* subsp. *deflexa*, Pe.f.=*Persoonia ?filiformis*, Sc.d=*Schoenus griffinianus*, St.d.=*Stylidium drummondianum*, Tr.s.=*Tricoryne soullierae*.

5.1.2. Introduced (Weed) Species

A total of nine introduced (weed) species were recorded during the October 2022 monitoring period (Table 3). All weed species recorded are permitted species pursuant to section 11 of the BAM Act (DPIRD 2023). All weeds had medium or unknown ecological impact ratings (Table 3; DPaW 2013). **Arctotheca calendula* had a medium invasiveness rating and **Trifolium hirtum* had an unknown invasiveness rating, all other weed species had a rapid invasiveness rating (Table 3; DPaW 2013).

Table 3: Summary of introduced (weed) species found in the October 2022 monitoring period

Note: Ecological impact: U=unknown, M=medium; Invasiveness: U=unknown, M=medium, R=rapid.

INTRODUCED SPECIES	FAMILY	COMMON NAME	ECOLOGICAL IMPACT[1]	INVASIVENESS[1]
**Aira caryophyllea*	Poaceae	Silvery Hairgrass	U	R
**Arctotheca calendula*	Asteraceae	Capeweed	M	M
**Hypochaeris glabra*	Asteraceae	Smooth Catsear	M	R
**Lysimachia arvensis*	Primulaceae	Blue Pimpernel	U	R
**Trifolium hirtum*	Fabaceae	Rose Clover	U	U
**Ursinia anthemoides*	Asteraceae	Ursinia	U	R
**Vulpia myuros*	Poaceae	Rat's Tail Fescue	U	R
**Vulpia* sp.	Poaceae	Vulpia	U	R
**Wahlenbergia capensis*	Campanulaceae	Cape Bluebell	U	R

[1]Ecological impact and invasiveness ratings taken from DPaW (2013) weed prioritisation.

41 weeds were recorded present within 8 rehabilitation transects, whilst weeds were recorded in six quadrats within four analogue transects (Figure 5). **Hypochaeris glabra* was the most abundant weed, recorded in seven rehabilitation transects and in three analogue transects. **Wahlenbergia capensis* was recorded in three rehabilitation and one analogue transect. **Ursinia anthemoides* and **Aira caryophyllea* were each recorded in one quadrat within two rehabilitation transects.

Geographic locations of introduced species and number of quadrats in which the species was recorded in 2022 are summarised in Appendix E.

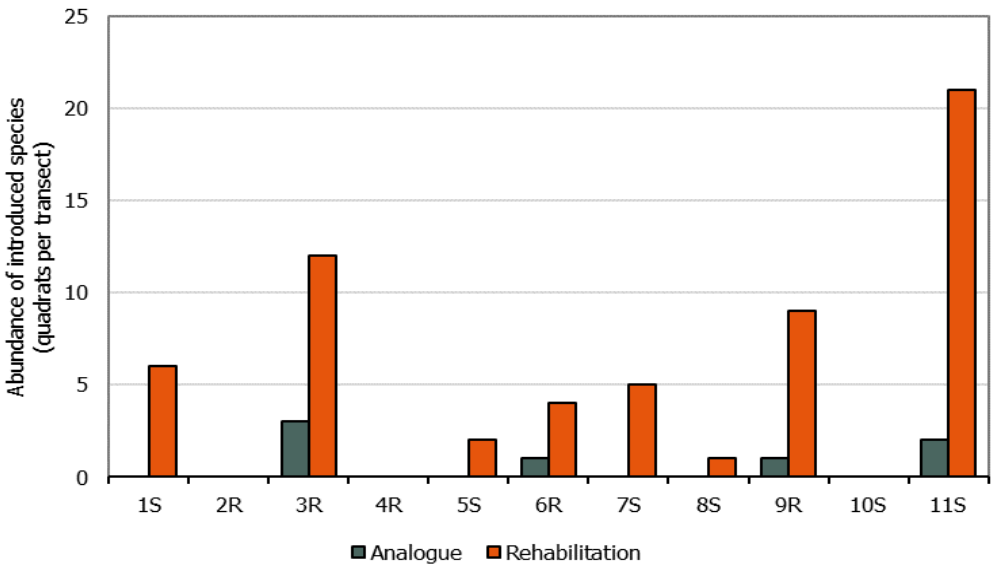


Figure 5: Number of quadrats with recordings of introduced species across monitored transects Trieste 3D seismic survey area, October 2022

Note: S=source line, R=receiver line.

5.1.3. Species Richness

Species richness of the 11 rehabilitation transects established and monitored in the Trieste 3D Seismic survey area in October 2022 ranged from 20 to 28 taxa per transect. Between monitoring years (2019, 2020, and 2022) species richness is increasing among all transects (Figure 6). In 2022 analogue species richness ranged from 20 to 30 taxa per transect. The average species richness was 23.3 taxa per transect in rehabilitation and 25.5 in analogue sites during October 2022 monitoring.

Perennial species richness of the 11 rehabilitation transects monitored in the Trieste 3D Seismic survey area in October 2022 ranged from 14 to 23 taxa per transect. Perennial species richness among analogue transects increased between monitoring years (Figure 7), ranging from 17 to 30 taxa per transect. The average species richness was 20.2 taxa per quadrat in rehabilitation transects and 24.1 in analogue sites.

The percentage of annuals relative to total number of species per quadrat ranged from 0.8% to 33.5% in rehabilitation transects in the Trieste 3D Seismic survey area in October 2022, and from 0% to 15% in analogue sites (Figure 8). On average, annual species amounted to 13.1% of species richness in rehabilitation transects, in comparison with 3.1%, 4.2%, and 4.3% of species richness in analogue transects in 2019, 2020, and 2022 surveys, respectively. All rehabilitation transects passed set 24-month criteria (Figure 7).

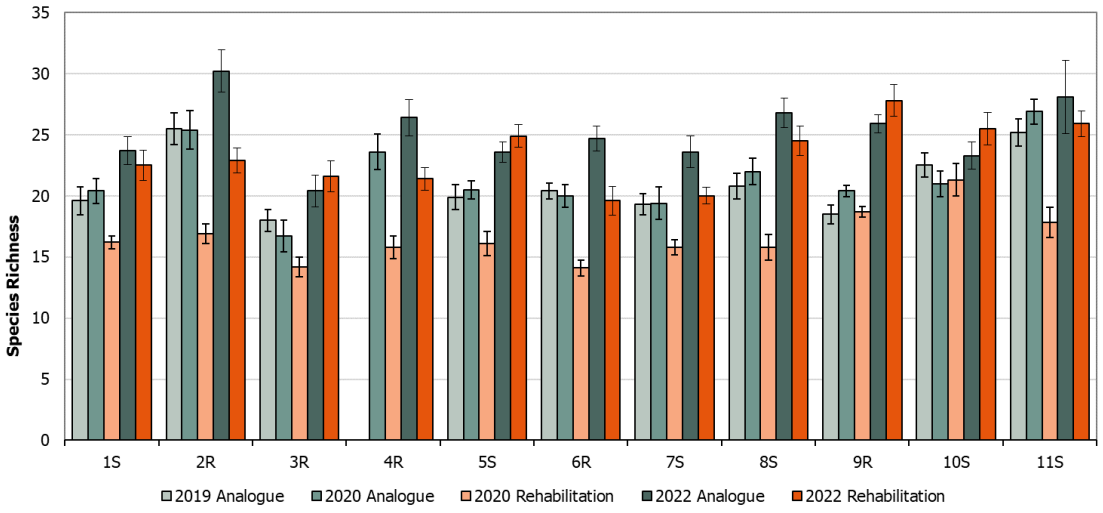


Figure 6: Total species richness per quadrat across monitored transects Trieste 3D seismic survey area, August 2019, October 2020 and October 2022
Note: S=source line, R=receiver line.

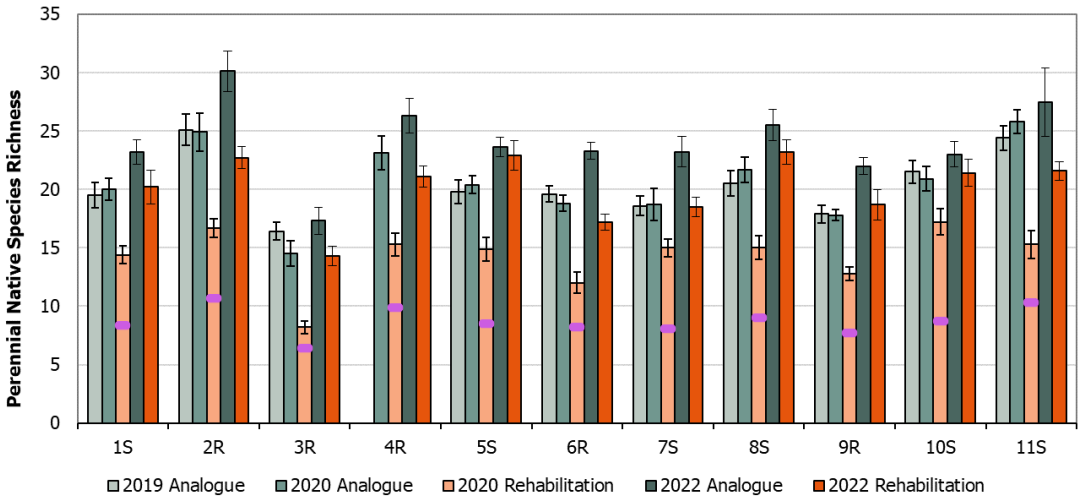


Figure 7: Perennial native species richness per quadrat across monitored transects Trieste 3D seismic survey area, August 2019, October 2020 and October 2022
Note: S=source line, R=receiver line; purple dash indicates minimum 40% target for rehabilitation sites at 24-months.

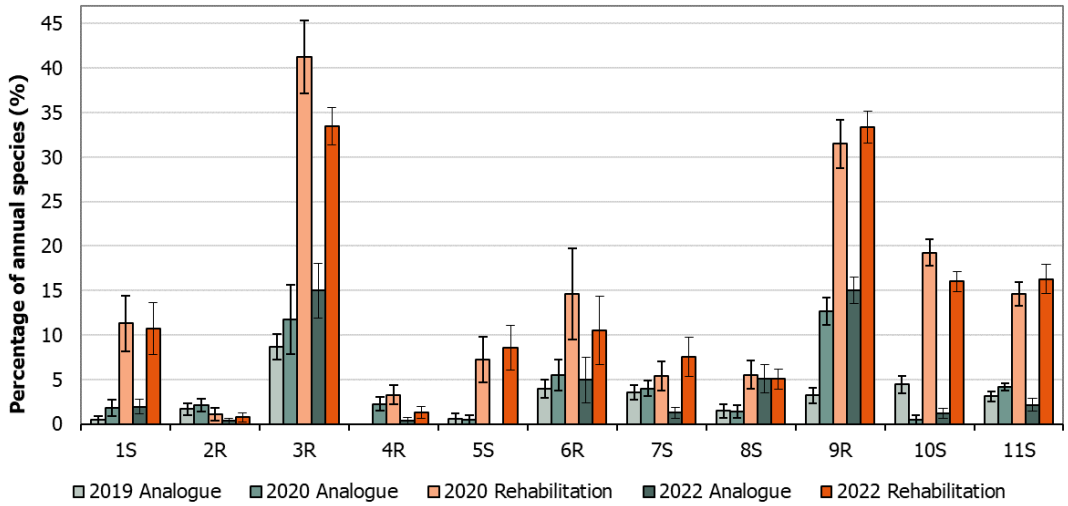


Figure 8: Percentage of annuals relative to total number of species per quadrat across monitored transects Trieste 3D seismic survey area, August 2019, October 2020, and October 2022
Note: S=source line, R=receiver line.

5.1.4. Species Foliage Cover

Perennial species accounted for 98.8% to 100% of total foliage cover in rehabilitation transects monitored in the Trieste 3D Seismic survey area in October 2022, and for 99.9% to 100% total foliage cover in analogue transects in 2022.

Foliage cover of perennial native species in the 11 rehabilitation transects monitored in the Trieste 3D Seismic survey area in October 2022 ranged from 13.8% to 40.4% cover per transect. Foliage cover of perennial native species in the 11 analogue transects monitored in the Trieste 3D Seismic survey area in October 2022 ranged from 59.6% to 95% cover per transect. Cover of perennial species has increased since the last monitoring period in 2020 has increased (Figure 9). Foliage cover of perennials amongst analogue transects is similar and has increased with each monitoring period (Figure 9). During 2022 cover ranged from 59.6% to 95% among analogue transects. One rehabilitation transects (9R) had average perennial species foliage cover that failed to meet 24-month 20% foliage cover completion criteria (Figure 9). All other rehabilitation transects passed set 24-month criteria. Transect R11S had previously failed 12-month targets during 2020 monitoring, with an improvement in cover ensuring its pass during 2022 monitoring.

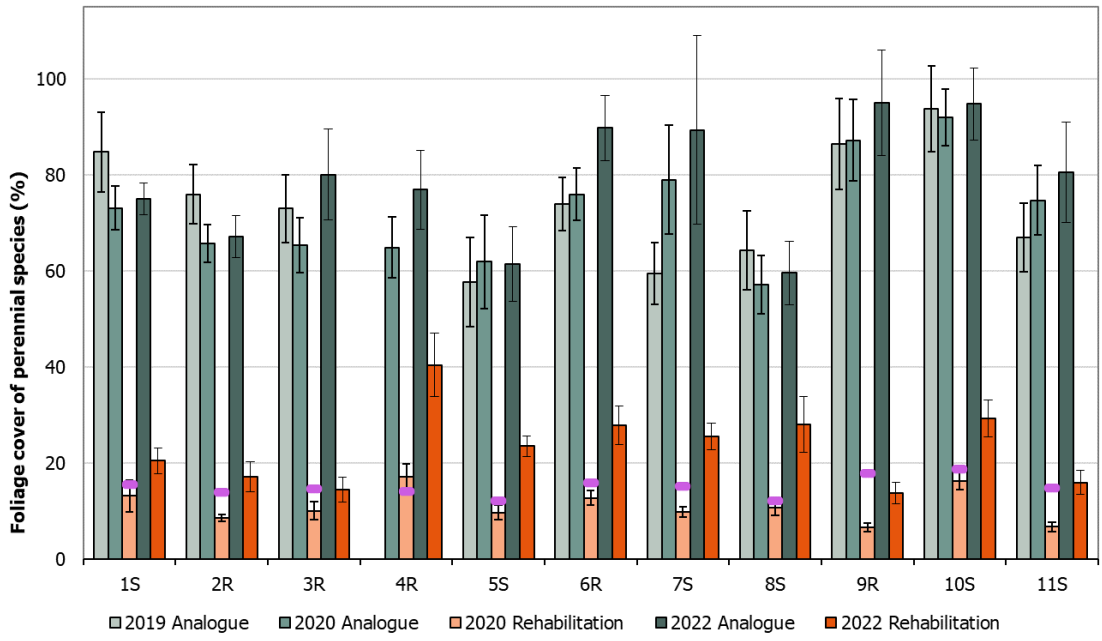


Figure 9: Foliage cover of perennial native species per quadrat across monitored transects Trieste 3D seismic survey area, August 2019, October 2020 and October 2022
Note: S=source line, R=receiver line; purple dash indicates recommended completion criteria target for rehabilitation sites of 20% foliage cover at 24-months.

5.2. Dieback Introduction

No visual impacts of dieback to the Trieste 3D vegetation monitoring transects was visible. Refer to Appendix B for reference photographs of transects monitored during October 2022.

5.3. Landform and Soils

Stable landscapes with minimal erosion was observed along all Trieste 3D vegetation monitoring transects. Refer to Appendix B for reference photographs of transects monitored during October 2022.

6. DISCUSSION

Mattiske Consulting Pty Ltd was commissioned by Beach Energy Limited in to monitor a series of rehabilitation transects and their respective analogues within the Trieste 3D Seismic survey area. Between October 3rd and October 6th 2022 transects established along 3D Seismic survey disturbance source and receiver, as well as adjacent analogue transects, were monitored. Key indicators of rehabilitation success were assessed for the 11 analogue transects in the Trieste 3D Seismic survey area; including, no new introduction of declared or environmental weeds, native species richness, native species foliage cover, stable landform, lack of soil erosion, and absence of dieback evidence.

A total of 323 vascular plant taxa, representative of 127 genera and 49 families, were recorded within the Trieste 3D Seismic survey area transects during 2022 monitoring. The majority of taxa recorded were representative of the Proteaceae (46 taxa), Myrtaceae (42 taxa) and Fabaceae (29 taxa) families. No threatened flora species pursuant to pursuant to Part 2, Division 1, Subdivision 2 of the *BC Act* and as listed by DBCA (2022b), or pursuant to section 179 of the EPBC Act or listed by the DCCEEW (2022b), were recorded within the Trieste 3D Seismic survey area transects. Ten priority flora species, as listed by DBCA (2022b, 2022c) were recorded within the Trieste 3D Seismic survey area transects during 2022 monitoring. One Priority 1 taxon (*Tricoryne soullierae*), six Priority 3 taxa (*Banksia fraseri* var. *crebra*, *Hemiandra* sp. Eneabba (H. Demarz 3687), *Hypocalymma gardneri*, *Mesomelaena stygia* subsp. *deflexa*, *Persoonia ?filiformis* and *Stylidium drummondianum*), and three Priority 4 taxa (*Banksia scabrella*, *Conostephium magnum* and *Schoenus griffinianus*) were recorded during October 2022 monitoring.

Species richness ranged from 20 to 28 taxa per transect. Across all 11 analogue transects an average species richness of 25.5 was recorded. Overall, all rehabilitation transects exceeded the recommended completion criteria target of 20% perennial species richness compared with the adjacent analogue transects at 12 months, and the 40% targets for 24 months. Furthermore, native species richness has increased across each monitoring period suggesting that recovery of the disturbed areas is time dependent.

Foliage cover of perennial native species in the 11 rehabilitation transects monitored in the Trieste 3D Seismic survey area in October 2022 ranged from 13.8% to 40.4% cover per transect. Foliage cover of perennial native species in the 11 analogue transects monitored in the Trieste 3D Seismic survey area in

October 2022 ranged from 59.6% to 95% cover per transect. All rehabilitation transects exceeded the 12-month completion criteria target of 10% foliage cover of perennial species against their adjacent analogue transects. Of the 11 rehabilitation transects all passed the 24-month completion criteria target of 20% foliage cover of perennial species against their adjacent analogue transects except for transect 9R which fell short by 4.1%.

A total of nine introduced (weed) species were recorded during the October 2022 monitoring period (Table 3). All weed species recorded are permitted species pursuant to section 11 of the BAM Act and are not declared environmental weeds (DPIRD 2023). Despite an increase in weed occurrence amongst transects, none of the taxa recorded during October 2022 are listed as declared environmental weeds and all are permitted species pursuant to section 11 of the BAM Act (DPIRD 2023). As such, completion criteria for weed species were met by all rehabilitation transects. It is predictable that as the native species increase their numbers and cover on the rehabilitation areas that the weed species will be out-competed by native species.

Annual and short-live perennials constitute a minor component of the vegetation common to the Trieste region (Riviera et al. 2021). As such, it is not surprising that species with perennial life histories comprise over 90% of the taxa recorded during October 2022 monitoring. The persistence of annuals is therefore expected to decline with time, as annual species become outcompeted by perennial taxa common to this vegetation community (Riviera et al. 2021). All weed species recorded during October 2022 monitoring were annual species that likely will not require remedial activity due to their life histories and the expected natural succession (i.e., recovery) of the vegetation within the Trieste seismic lines.

Only one rehabilitation transect failed to meet all completion criteria during 2022 monitoring – 9R – which failed only the perennial foliage cover criteria but passed the weed and species richness criteria. All other rehabilitation transects passed completion criteria set in 2022, with an improvement in Transect 11S seen since monitoring during 2020. Rehabilitation transect 9R failed to meet the 12-month completion criteria during the 2020 monitoring period. Transect 9R will likely pass these criteria with increasing time and this should be reviewed after the 2024 assessment. Additional monitoring periods should demonstrate recovery of the vegetation community toward that of the analogue sites. This is demonstrated along transect 11S which failed to meet foliage cover criteria during monitoring in 2020 (Mattiske Consulting 2020). Since the previous monitoring period transect 11S has exceeded the criteria for native foliage cover, indicating time not active intervention is necessary for vegetation recovery along the Trieste 3D Seismic disturbance transects. Table 4 summarises the outcomes of rehabilitation transects in regard to achieving completion criteria during 2022 monitoring.

Table 4: Summary outcome of October 2022 rehabilitation monitoring transects and their pass / fail assessed against analogue completion criteria

Note: Analogue targets are calculated from averages of all monitoring years for that particular transect. REHAB=Rehabilitation. ☐ Indicates Rehabilitation Pass ☐ Indicates Rehabilitation Fail

TRANS.	COMPLETION CRITERIA MEASURE									
	ENVIRO. WEEDS ABSENT	PERENNIAL SPECIES RICHNESS			PERENNIAL FOLIAGE COVER			DIABACK	LAND-FORM	SOIL
		REHAB	12 MONTH ANALOGUE TARGET (20%)	24 MONTH ANALOGUE TARGET (40%)	REHAB	12 MONTH ANALOGUE TARGET (10%)	24 MONTH ANALOGUE TARGET (20%)			
1S	YES	20.2 ± 1.43	4.18	8.36	20.50 ± 2.69	7.76	15.53	ABSENT	STABLE	PASS
2R	YES	22.7 ± 0.94	5.34	10.68	17.21 ± 3.09	6.96	13.92	ABSENT	STABLE	PASS
3R	YES	14.3 ± 0.80	3.21	6.43	14.47 ± 2.66	7.28	14.57	ABSENT	STABLE	PASS
4R	YES	21.1 ± 0.89	4.94	9.88	40.40 ± 6.63	7.09	14.19	ABSENT	STABLE	PASS
5S	YES	22.9 ± 1.29	4.25	8.51	23.53 ± 2.12	6.04	12.07	ABSENT	STABLE	PASS
6R	YES	17.2 ± 0.68	4.11	8.23	27.94 ± 4.03	7.99	15.98	ABSENT	STABLE	PASS
7S	YES	18.5 ± 0.82	4.03	8.07	25.53 ± 2.83	7.6	15.2	ABSENT	STABLE	PASS
8S	YES	23.2 ± 1.02	4.51	9.03	28.08 ± 5.79	6.04	12.08	ABSENT	STABLE	PASS
9R	YES	18.7 ± 1.30	3.85	7.69	13.79 ± 2.21	8.96	17.91	ABSENT	STABLE	PASS
10S	YES	21.4 ± 1.15	4.36	8.72	29.34 ± 3.81	9.35	18.7	ABSENT	STABLE	PASS
11S	YES	21.6 ± 0.79	5.18	10.35	15.98 ± 2.50	7.41	14.82	ABSENT	STABLE	PASS

7. CONCLUSIONS AND REVIEW OF CRITERIA

In conclusion, results have shown that the UCL area within the Trieste 3D Seismic survey area supports high conservation values with a high level of native species richness, native foliage cover, high numbers of priority listed taxa, and lack of declared weed species. Monitoring during 2022 has indicated rehabilitation transects are meeting set completion criteria at the 24-month targets (with only one exception (Table 4) for 9R transect) with minimal impact having taken place on source and receiver lines within the Trieste 3D seismic survey area. Increases in native species metrics (e.g., richness, cover) across monitoring periods are time dependent, with increased time since disturbance. As such, transects that have not met criteria are likely to pass during future monitoring periods.

Current criteria appear to address measures of recovery adequately for the Trieste 3D Seismic Project. Irrespective of seasonal variation and different vegetation units, transects monitored within the Trieste 3D Seismic survey area are progressing toward analogue targets (e.g., completion criteria). As a result, the next assessment should be undertaken after several more years (2024) to allow continued growth to occur on the rehabilitation areas.

At this juncture as the weeds are not listed as declared or environmental weeds, active intervention during the coming 24 months is not warranted as such activities will only re-disturb the surface of some of the

rehabilitation areas which may increase the risks to weeds being introduced which may alter the positive trends in foliage cover of native species as observed in 2022 on most areas.

Refinement of the species richness completion criteria targets, which are relatively conservative, would be one recommendation from Mattiske Consulting. For example, currently species richness is tracking at 75.8% to 109.4% compared to 2022 analogues (including both annual and perennial taxa; or 73.8% to 97% for only perennial taxa in rehabilitation transects compared with analogue transects). We recommend an 80% species richness target compared with adjacent areas of native vegetation within 5 years. All remaining criteria appear adequate in terms of monitoring timing and target values set for the Trieste 3D Seismic Project.

8. ACKNOWLEDGEMENTS

The authors would like to thank Zoë Bowen and Pearl Catford from Beach Energy Limited for their assistance with this project.

9. PERSONNEL

The following Mattiske Consulting Pty Ltd personnel were involved in this project:

NAME	POSITION	PROJECT INVOLVEMENT	FLORA COLLECTION PERMITS
Dr EM Mattiske	Managing Director & Principal Ecologist	Planning, managing, editing, reporting	N/A
Dr S Ruoss	Project Leader	Planning, fieldwork, plant identification	FB62000031-4 & TFL 158-2122
L Cockram	Botanist	Fieldwork	FB620000266-3
L Ducki	Botanist/Ecologist	Fieldwork, data editing, reporting	FB62000394
K Smith (nee Craig)	Botanist	Fieldwork	FB62000423
CM Mooney	Botanist	Fieldwork	FB62000416

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APPENDIX A1: THREATENED AND PRIORITY FLORA DEFINITIONS

Under section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), **threatened flora** are categorised as extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent (Table A1.1).

Table A1.1 Federal definition of threatened flora species
Note: Adapted from section 179 of the EPBC Act.

CODE	CATEGORY	DEFINITION
Ex	**Extinct**	Species which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
ExW	**Extinct in the Wild**	Species which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CE	**Critically Endangered**	Species which at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
E	**Endangered**	Species which is not critically endangered and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.
V	**Vulnerable**	Species which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	**Conservation Dependent**	Species which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

The *Biodiversity Conservation Act 2016* (BC Act) provides for (amongst other things) the protection of flora that is facing an extremely high risk of extinction in the wild in the immediate, near or medium-term future in Western Australia under Part 10 (Division 2).

Threatened flora are listed in the *Wildlife Conservation (Rare Flora) Notice 2018* (under Part 2, Division 1, Subdivision 2 of the BC Act; Department of Biodiversity, Conservation and Attractions (DBCA 2022a) and are categorised under Schedules 1-3**.** A flora species is defined as **threatened** if it is facing an extremely high risk of extinction in the wild in the immediate, near or medium-term future, pursuant to sections 20, 21 and 22 of the BC Act. Threatened species are categorised as critically endangered, endangered, and vulnerable (Table A1.2).

Table A1.2 State definition of threatened flora species
Note: Adapted from DBCA (2022a).

CODE	CATEGORY	DEFINITION
CR	**Critically endangered**	Species considered to be facing an extremely high risk of becoming extinct in the wild (listed under Schedule 1 of the *Wildlife Conservation (Rare Flora) Notice 2018*).
EN	**Endangered**	Species considered to be facing a very high risk of becoming extinct in the wild (listed under Schedule 2 of the *Wildlife Conservation (Rare Flora) Notice 2018*).
VU	**Vulnerable**	Species considered to be facing a high risk of becoming extinct in the wild (listed under Schedule 3 of the *Wildlife Conservation (Rare Flora) Notice 2018*).

Priority flora species are defined as "possibly threatened species that do not meet the survey criteria, or are otherwise data deficient" or species that are "adequately known, are rare but not threatened, meet criteria for near threatened or have recently been removed from the threatened species list" for other than taxonomic reasons" (DBCA 2022b). Priority species are not afforded the same level of protection under state or federal legislation as the listed Threatened species, however are considered significant under the Environmental Protection Authority's *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority 2016a). The Department of Biodiversity, Conservation and Attractions categorises priority flora into four categories: Priority 1; Priority 2, Priority 3 and Priority 4 (Table A1.3).

Table A1.3: State definition of priority flora species
Note: Adapted from DBCA (2022b).

CODE	CATEGORY	DEFINITION
P1	**Priority 1:** Poorly-known species	Known from one or a few locations (< 5) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation; or are otherwise under threat of habitat destruction or degradation. In urgent need of further survey.
P2	**Priority 2:** Poorly-known species	Known from one or a few locations (< 5). Some occurrences are on lands managed primarily for nature conservation. In urgent need of further survey.
P3	**Priority 3:** Poorly-known species	Known from several locations and the species does not appear to be under imminent threat; or from few but widespread locations with either a large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. In need of further survey.
P4	**Priority 4:** Rare, Near Threatened, and other species in need of monitoring	**a) Rare -** Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands. **b) Near Threatened -** Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. **c) Other -** Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

APPENDIX A2: CATEGORIES AND CONTROL MEASURES OF DECLARED PEST (PLANT) ORGANISMS IN WESTERN AUSTRALIA

Section 22 of Western Australia's *Biosecurity and Agriculture Management Act 2007* (*BAM Act*) makes provision for a plant taxon to be listed as a declared pest organism in respect to parts of, or the entire State. According to the BAM Act, a declared pest is defined as a prohibited organism (section 12), or an organism for which a declaration under section 22 (2) of the Act is in force.

Under the *Biosecurity and Agriculture Management Regulations 2013* (WA), declared pest plants are placed in one of three control categories, C1 (exclusion), C2 (eradication) or C3 (management), which determines the measures of control which apply to the declared pest (Table A4.1). The current listing of declared pest organisms and their control category is through the Western Australian Organism List (DPIRD 2023).

Table A3.1 Categories and control measures of declared pest (plant) organisms
Note: Adapted from *Biosecurity and Agriculture Management Regulations 2013*.

CONTROL CATEGORY	CONTROL MEASURES
C1 (Exclusion) '(a) Category 1 (C1) — Exclusion: if in the opinion of the Minister introduction of the declared pest into an area or part of an area for which it is declared should be prevented.' Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.	In relation to a category 1 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.
C2 (Eradication) '(b) Category 2 (C2) — Eradication: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is feasible.' Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.	In relation to a category 2 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.
C3 (Management) '(c) Category 3 (C3) — Management: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is not feasible but that it is necessary to: **(i)** alleviate the harmful impact of the declared pest in the area; or **(ii)** reduce the number or distribution of the declared pest in the area; or **(iii)** prevent or contain the spread of the declared pest in the area.' Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.	In relation to a category 3 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to: **(a)** alleviate the harmful impact of the declared pest in the area for which it is declared; or **(b)** reduce the number or distribution of the declared pest in the area for which it is declared; or **(c)** prevent or contain the spread of the declared pest in the area for which it is declared.

APPENDIX A3: OTHER DEFINITIONS

Conservation significant flora

Under the *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority 2016a), flora may be considered significant for a range of reasons, including, but not limited to the following:

- being identified as threatened or priority species;
- locally endemic or associated with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems);
- new species or anomalous features that indicate a potential new species;
- representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- unusual species, including restricted subspecies, varieties or naturally occurring hybrids; or
- relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

Conservation significant vegetation

Under the *Environmental Factor Guideline: Flora and Vegetation* (Environmental Protection Authority 2016a), vegetation may be considered significant for a range of reasons, including, but not limited to the following:

- being identified as threatened or priority ecological communities;
- restricted distribution;
- degree of historical impact from threatening processes;
- a role as a refuge; or
- providing an important function required to maintain ecological integrity of a significant ecosystem.

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 1S Analogue Start 2022

Transect 1S Analogue Start 2020

Transect 1S Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 1S Analogue End 2022

Transect 1S Analogue End 2020

Transect 1S Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

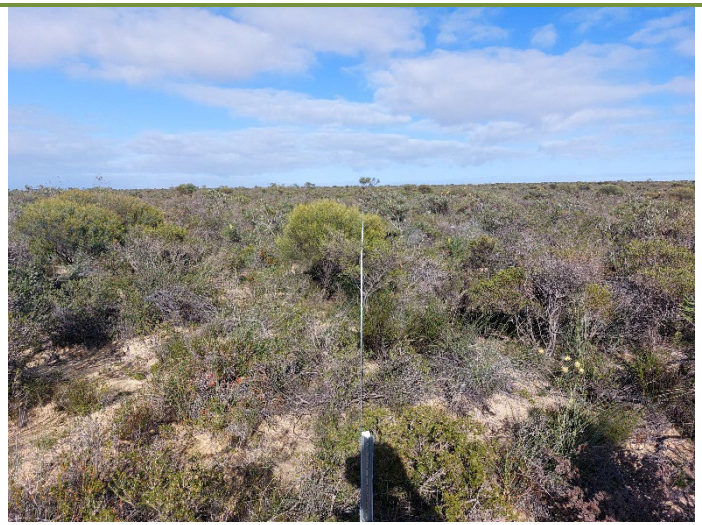
Transect 1S Rehab Start 2022

Transect 1S Rehab Start 2020

Transect 1S Rehab End 2022

Transect 1S Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022



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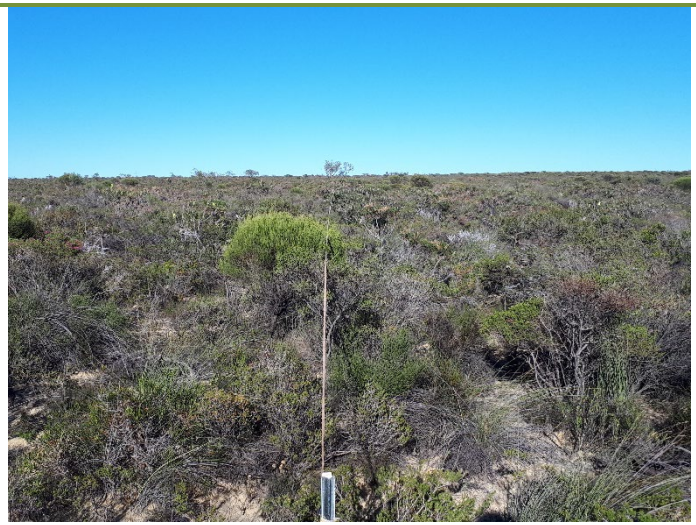


Transect 2R Analogue Start 2020

Transect 2R Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 2R Analogue End 2022

Transect 2R Analogue End 2020

Transect 2R Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 2R Rehab Start 2022

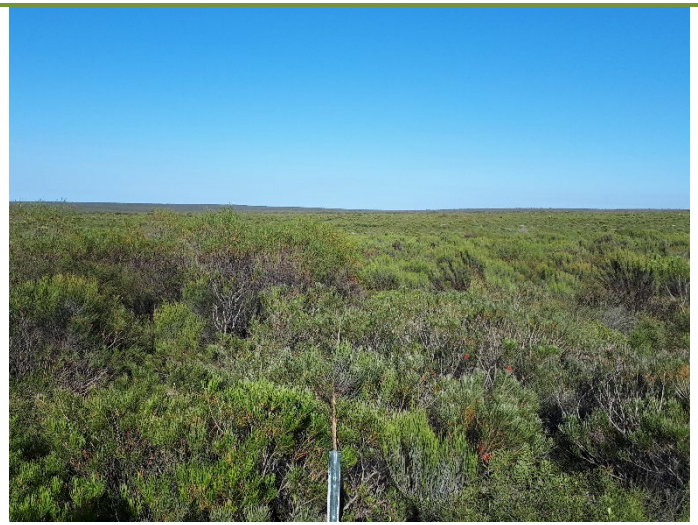
Transect 2R Rehab Start 2020

Transect 2R Rehab End 2022

Transect 2R Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 3R Analogue Start 2022



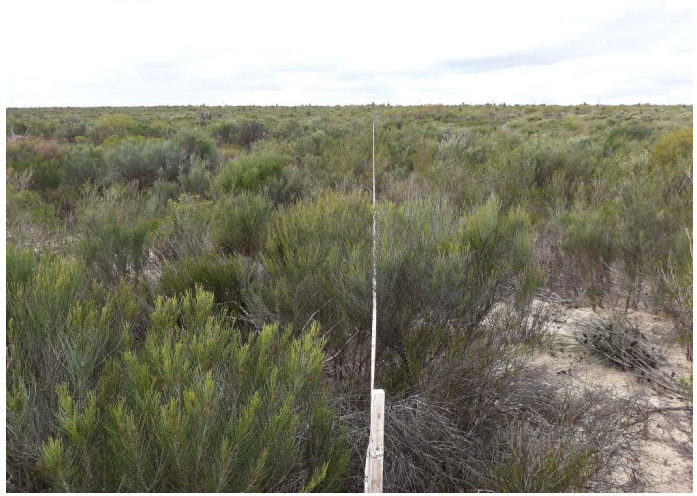
Transect 3R Analogue Start 2020

Transect 3R Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 3R Analogue End 2022

Transect 3R Analogue End 2020



Transect 3R Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 3R Rehab Start 2022

Transect 3R Rehab Start 2020

Transect 3R Rehab End 2022

Transect 3R Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 4R Analogue Start 2022

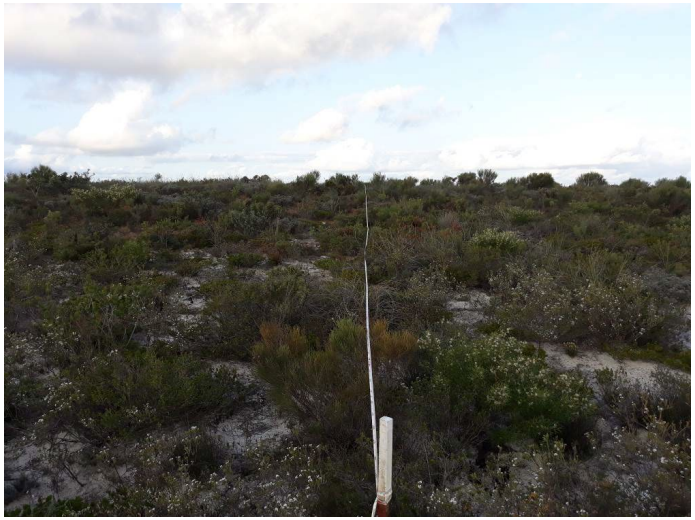
Transect 4R Analogue Start 2020

Transect 4R Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 4R Analogue End 2022

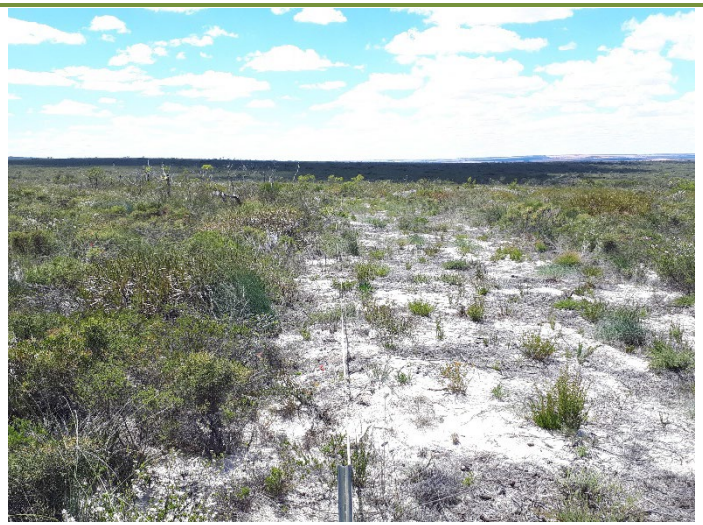
Transect 4R Analogue End 2020



Transect 4R Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 4R Rehab Start 2022



Transect 4R Rehab Start 2020

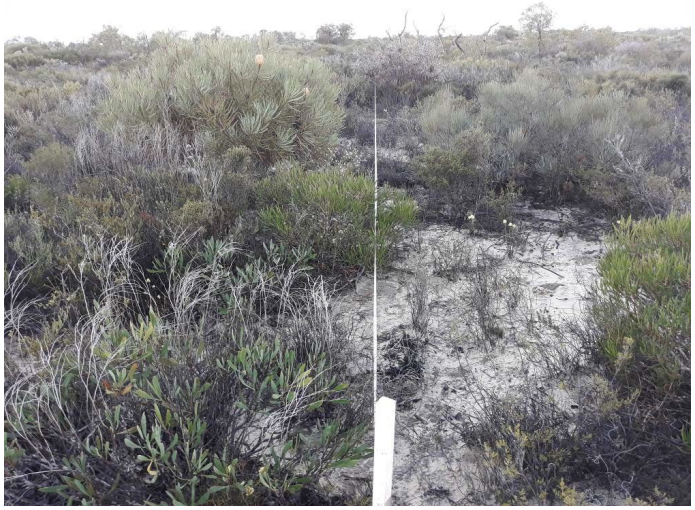
Transect 4R Rehab End 2022

Transect 4R Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 5S Analogue Start 2022

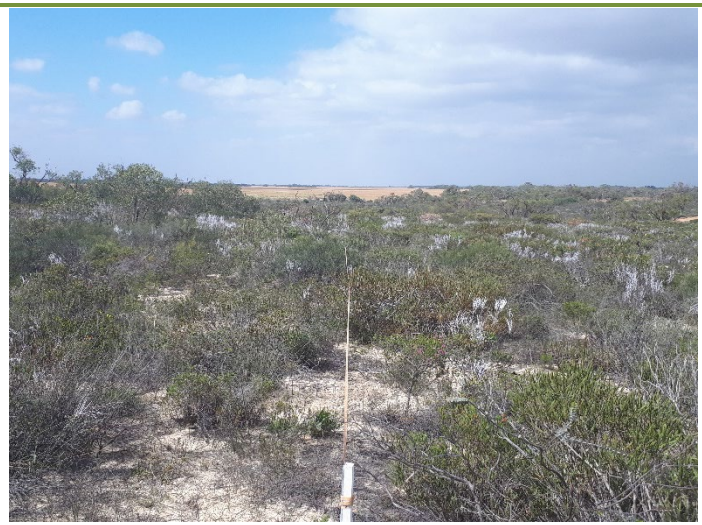
Transect 5S Analogue Start 2020



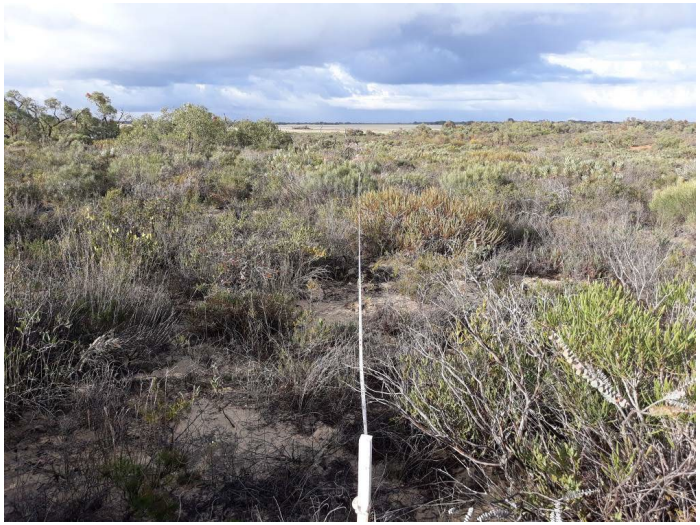
Transect 5S Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 5S Analogue End 2022



Transect 5S Analogue End 2020



Transect 5S Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 5S Rehab Start 2022

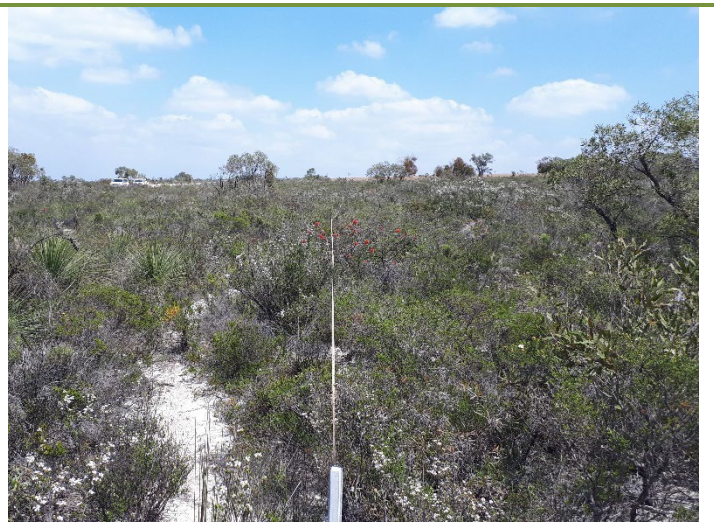
Transect 5S Rehab Start 2020

Transect 5S Rehab End 2022

Transect 5S Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 6R Analogue Start 2022



Transect 6R Analogue Start 2020

Transect 6R Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 6R Analogue End 2022

Transect 6R Analogue End 2020

Transect 6R Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 6R Rehab Start 2022

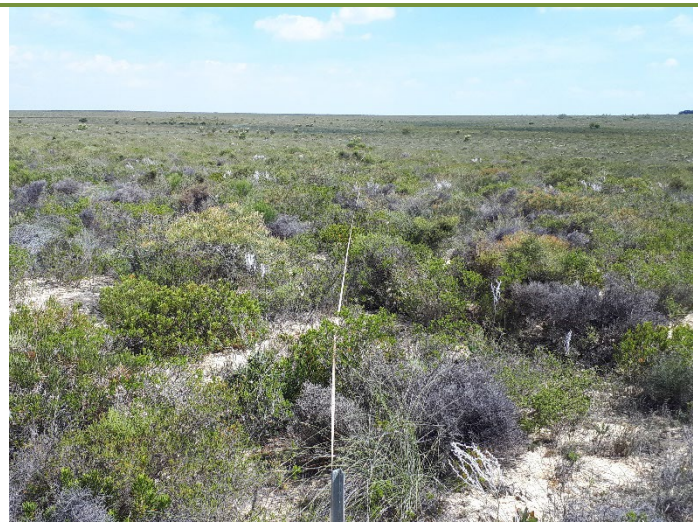
Transect 6R Rehab Start 2020

Transect 6R Rehab End 2022

Transect 6R Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 7S Analogue Start 2022



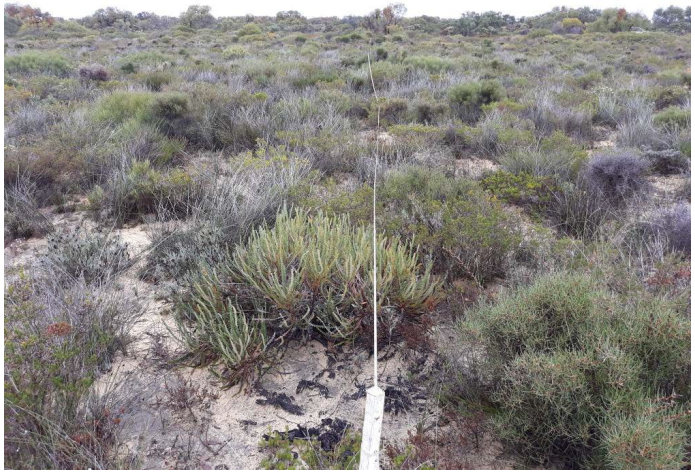
Transect 7S Analogue Start 2020

Transect 7S Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 7S Analogue End 2022

Transect 7S Analogue End 2020



Transect 7S Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 7S Rehab Start 2022

Transect 7S Rehab Start 2020

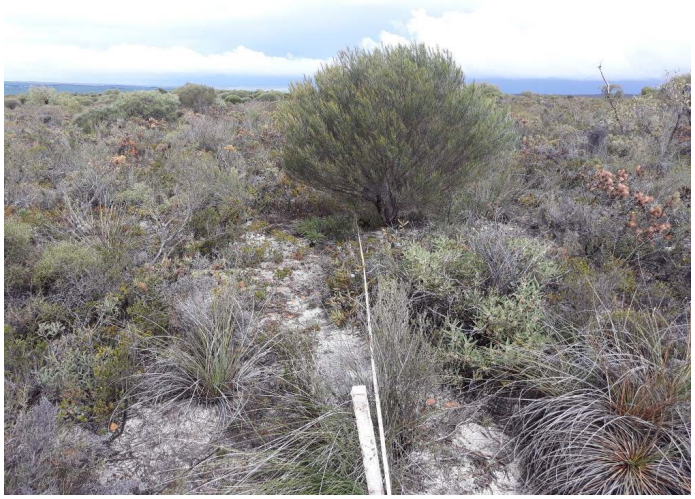
Transect 7S Rehab End 2022

Transect 7S Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 8S Analogue Start 2022

Transect 8S Analogue Start 2020



Transect 8S Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 8S Analogue End 2022

Transect 8S Analogue End 2020

Transect 8S Analogue End 2019

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Transect 8S Rehab Start 2022

Transect 8S Rehab Start 2020

Transect 8S Rehab End 2022

Transect 8S Rehab End 2020

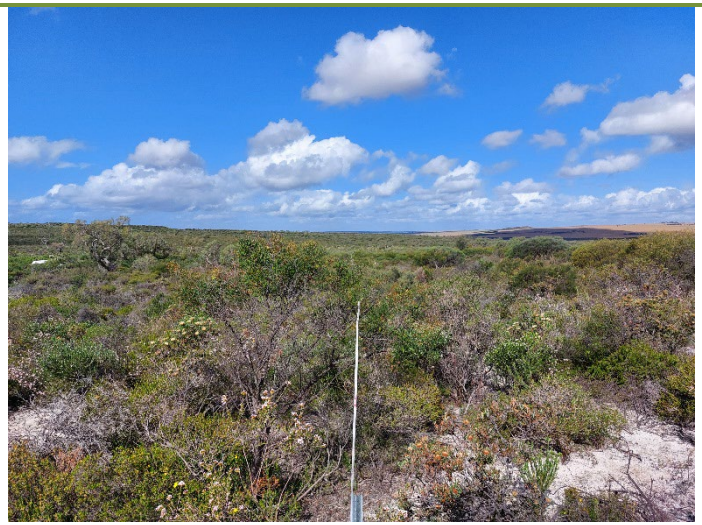
APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 9R Analogue Start 2022

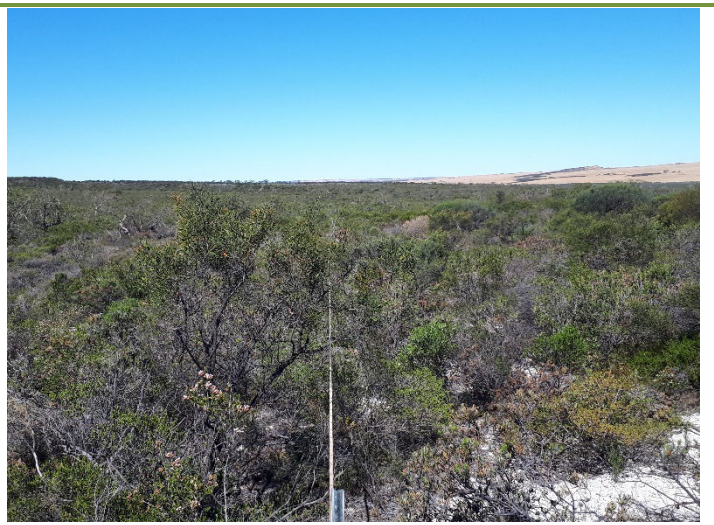
Transect 9R Analogue Start 2020

Transect 9R Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022



Transect 9R Analogue End 2022



Transect 9R Analogue End 2020

Transect 9R Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 9R Rehab Start 2022

Transect 9R Rehab Start 2020

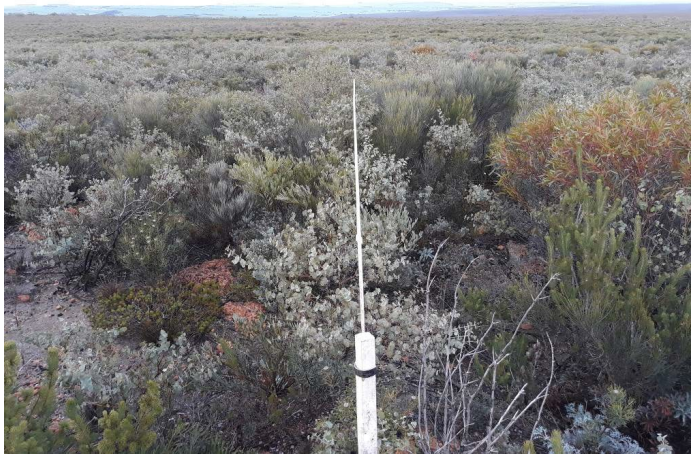
Transect 9R Rehab End 2022

Transect 9R Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 10S Analogue Start 2022

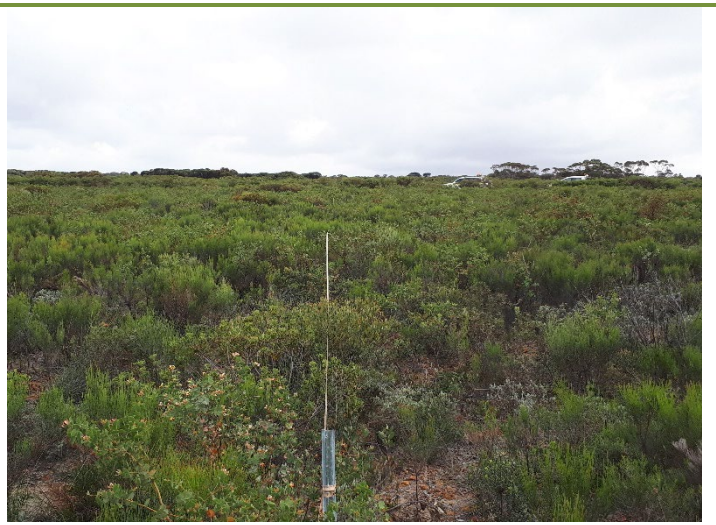
Transect 10S Analogue Start 2020



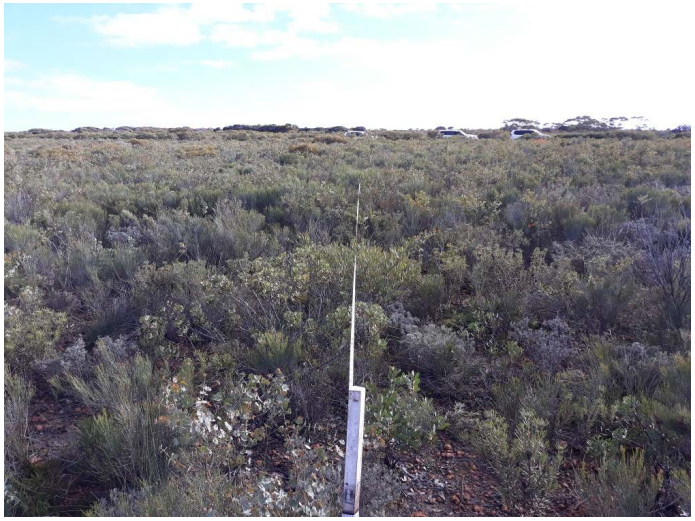
Transect 10S Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 10S Analogue End 2022



Transect 10S Analogue End 2020



Transect 10S Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 10S Rehab Start 2022

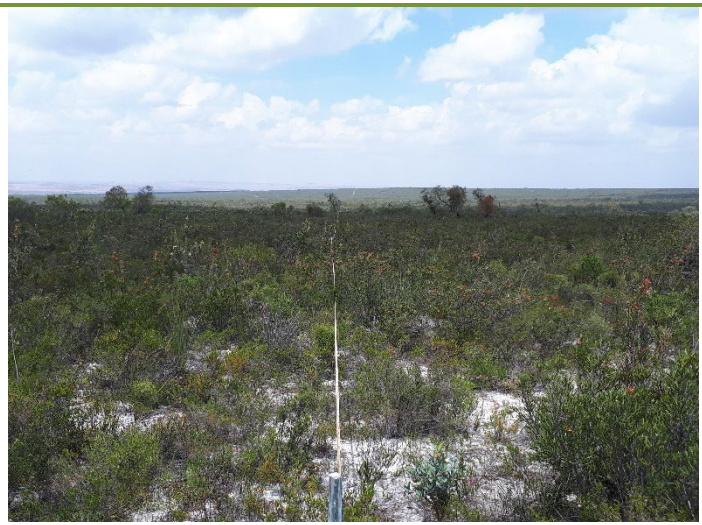
Transect 10S Rehab Start 2020

Transect 10S Rehab End 2022

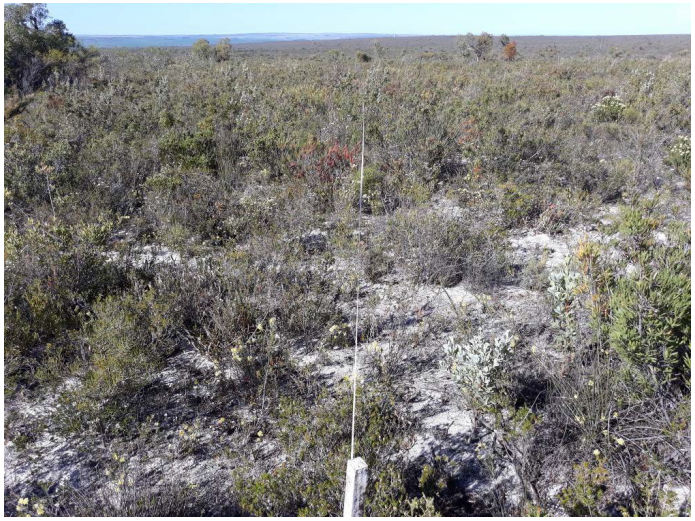
Transect 10S Rehab End 2020

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 11S Analogue Start 2022



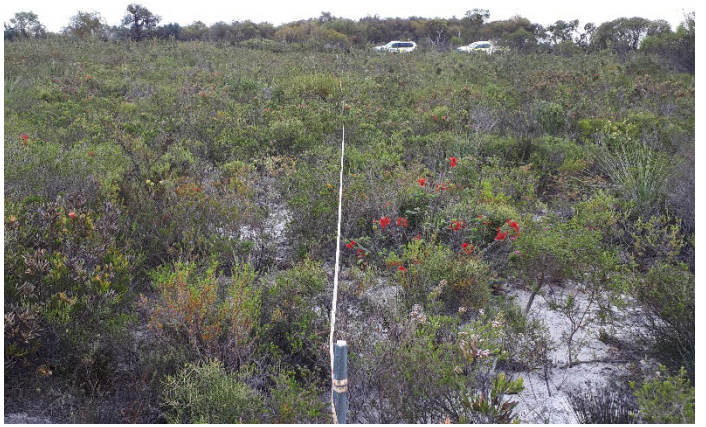
Transect 11S Analogue Start 2020



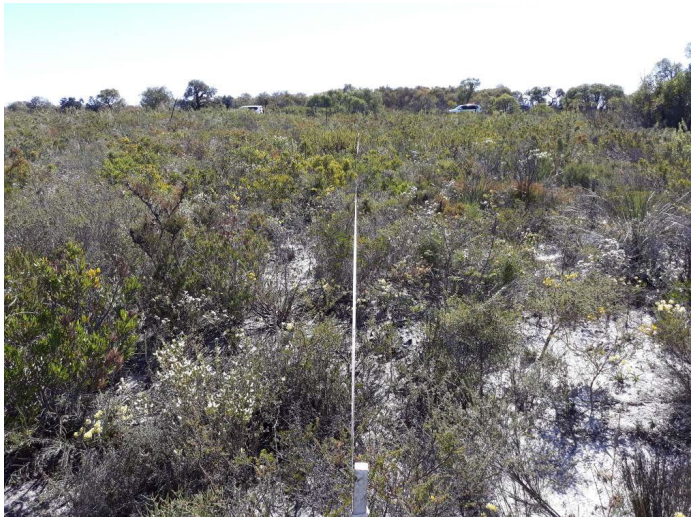
Transect 11S Analogue Start 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 11S Analogue End 2022



Transect 11S Analogue End 2020



Transect 11S Analogue End 2019

APPENDIX B1: PHOTOS OF REHABILITATION AND ANALOGUE TRANSECTS MONITORED IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Transect 11S Rehab Start 2022

Transect 11S Rehab Start 2020

Transect 11S Rehab End 2022

Transect 11S Rehab End 2020

APPENDIX C: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN TRANSECTS FROM TRIESTE 3D SEISMIC SUREVY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Note: * denotes introduced species; P1-P4 denote priority flora species in brackets (DBCA 2022c, WAH 1998-).

FAMILY	SPECIES	ANALOGUE			REHABILITATION	
		2019	2020	2022	2020	2022
AMARANTHACEAE	*Ptilotus stirlingii*					X
	Ptilotus stirlingii subsp. stirlingii				X	X
	Ptilotus polystachyus				X	X
	Ptilotus sp.					X
ANARTHRIACEAE	*Lyginia barbata*	X	X	X	X	X
APIACEAE	*Actinotus leucocephalus*		X	X	X	X
	Xanthosia huegelii	X	X	X		X
	Xanthosia sp.	X				
	Apiaceae sp.	X				
ARALIACEAE	*Trachymene pilosa*			X	X	X
ASPARAGACEAE	*Acanthocarpus preissii*	X	X	X	X	X
	Laxmannia omnifertilis	X				
	Laxmannia sessiliflora	X	X	X	X	X
	Lomandra hastilis		X	X	X	X
	Lomandra suaveolens	X	X	X	X	X
	Lomandra preissii			X		
	Lomandra sp.	X	X	X	X	X
	Thysanotus dichotomus	X	X	X		
	Thysanotus triandrus		X	X		
	Thysanotus thyrsoideus			X		
	Thysanotus sp. (climbing)	X	X	X		X
	Thysanotus sp.		X	X		X
ASTERACEAE	* *Arctotheca calendula*					X
	Gnephosis tenuissima	X	X	X	X	X
	Hyalosperma cotula		X	X	X	X
	* *Hypochaeris glabra*		X	X	X	X
	Millotia tenuifolia					X
	Podotheca angustifolia		X	X	X	X
	Pterochaeta paniculata	X	X	X	X	X
	* *Ursinia anthemoides*			X	X	X
	Waitzia acuminata				X	X
	Waitzia acuminata var. *acuminata*					X
	Waitzia suaveolens var. *suaveolens*				X	X
	* Asteraceae sp.		X	X		
BORAGINACEAE	*Halgania* sp.	X				
	Halgania sp. Wongan Hills (K.F. Kenneally 2393)		X	X	X	X
BORYACEAE	*Borya sphaerocephala*	X	X	X	X	X
CAMPANULACEAE	*Isotoma hypocrateriformis*				X	X
	Lobelia heterophylla		X	X	X	X
	* *Wahlenbergia capensis*		X	X	X	X
	Wahlenbergia gracilenta					X
	Wahlenbergia preissii		X	X	X	X

APPENDIX C: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN TRANSECTS FROM TRIESTE 3D SEISMIC SUREVY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Note: * denotes introduced species; P1-P4 denote priority flora species in brackets (DBCA 2022c, WAH 1998-).

FAMILY	SPECIES	ANALOGUE			REHABILITATION	
		2019	2020	2022	2020	2022
CASUARINACEAE	*Allocasuarina campestris*	X	X	X	X	X
	Allocasuarina humilis	X	X	X	X	X
	Allocasuarina microstachya	X	X	X	X	X
	Allocasuarina sp.				X	X
CELASTRACEAE	*Stackhousia dielsii*			X		
	Stackhousia monogyna					X
	Stackhousia sp.					X
	Tripterococcus brunonis				X	X
	Tripterococcus sp.					X
CENTROLEPIDACEAE	*Centrolepis aristata*		X	X		
	Centrolepis pilosa	X				X
COLCHICACEAE	*Burchardia congesta*	X	X	X	X	X
CRASSULACEAE	Crassula colorata		X	X	X	X
CYPERACEAE	*Caustis dioica*	X	X	X	X	X
	Chaetospora curvifolia		X	X	X	X
	Lepidosperma apricola	X	X	X	X	X
	Lepidosperma squamatum	X	X	X	X	X
	Lepidosperma sp. P1 small head (M.D. Tindale 166A)	X	X	X	X	X
	Lepidosperma sp.	X	X	X	X	X
	Mesomelaena pseudostygia	X	X	X	X	X
	Mesomelaena stygia subsp. d*eflexa* (P3)	X	X	X	X	X
	Schoenus ?andrewsii	X	X	X	X	X
	Schoenus brevisetis			X	X	X
	Schoenus clandestinus	X	X	X	X	X
	Schoenus curvifolius	X				
	Schoenus griffinianus (P4)					X
	Schoenus nanus			X	X	X
	Schoenus pleiostemoneus	X	X	X	X	X
	Schoenus unispiculatus			X		
	Schoenus sp.	X			X	X
	Cyperaceae sp.				X	X
DASYPOGONACEAE	*Calectasia narragara*	X	X	X	X	X
DILLENIACEAE	*Hibbertia acerosa*	X	X	X	X	X
	Hibbertia aurea	X	X			
	Hibbertia crassifolia	X	X	X	X	X
	Hibbertia hypericoides subsp. *hypericoides*	X	X	X	X	X
	Hibbertia robur	X	X	X	X	X
	Hibbertia subvaginata	X	X	X	X	X
	Hibbertia sp.				X	X
DROSERACEAE	*Drosera eneabba*	X	X	X	X	X
	Drosera erythrorhiza	X	X	X	X	X
	Drosera humilis			X		X
	Drosera magna			X		X

APPENDIX C: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN TRANSECTS FROM TRIESTE 3D SEISMIC SUREVY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Note: * denotes introduced species; P1-P4 denote priority flora species in brackets (DBCA 2022c, WAH 1998-).

FAMILY	SPECIES	ANALOGUE			REHABILITATION	
		2019	2020	2022	2020	2022
DROSERACEAE	*Drosera pallida*	X	X	X	X	
(continued)	*Drosera porrecta*			X		X
	Drosera thysanosepala			X		X
	Drosera sp. (climbing)	X	X	X	X	X
	Drosera sp.	X	X	X	X	X
ECDEIOCOLEACEAE	*Ecdeiocolea monostachya*	X	X	X	X	X
	Georgeantha hexandra	X	X	X	X	X
ERICACEAE	*Andersonia heterophylla*	X	X	X		
	Andersonia lehmanniana subsp. lehmanniana	X	X	X	X	X
	Andersonia sp.	X		X		X
	Astroloma glaucescens	X				
	Astroloma microdonta	X				
	Conostephium magnum (P4)	X	X	X		
	Conostephium sp.				X	X
	Leucopogon inflexus	X	X	X	X	X
	Leucopogon prolatus					X
	Leucopogon sp. Northern ciliate (R. Davis 3393)	X	X	X	X	X
	Leucopogon sp.	X	X	X		
	Lysinema pentapetalum	X	X	X		
	Styphelia glaucifolia				X	X
	Styphelia leptantha			X		
	Styphelia microdonta		X	X		X
	Styphelia tortifolia		X	X		X
	Styphelia xerophylla	X	X	X	X	X
	Styphelia sp. Eneabba (N. Marchant s.n. PERTH 01291777)	X	X	X	X	X
	Styphelia sp.			X		
	Eriaceae sp.	X			X	X
EUPHORBIACEAE	*Monotaxis grandiflora*	X	X	X	X	X
	Stachystemon axillaris	X	X	X	X	X
FABACEAE	*Acacia auronitens*	X	X	X	X	X
	Acacia blakelyi	X	X	X	X	X
	Acacia dilatata	X	X	X		
	Acacia lasiocarpa		X	X	X	X
	Acacia pulchella	X	X	X	X	X
	Acacia stenoptera	X	X	X	X	X
	Acacia sp.		X	X	X	X
	Bossiaea eriocarpa	X	X	X	X	X
	Chorizema aciculare subsp*. laxum*	X				
	Cristonia stenophylla	X	X	X		X
	Daviesia daphnoides	X	X	X		
	Daviesia divaricata subsp*. divaricata*	X	X	X	X	X
	Daviesia nudiflora	X	X	X	X	X
	Daviesia pedunculata	X	X	X	X	X
	Daviesia podophylla	X	X	X		
	Daviesia triflora	X	X	X		X
	Daviesia ?incrassata subsp*. teres*	X	X	X	X	X
	Daviesia oxyclada			X		

APPENDIX C: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN TRANSECTS FROM TRIESTE 3D SEISMIC SUREVY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Note: * denotes introduced species; P1-P4 denote priority flora species in brackets (DBCA 2022c, WAH 1998-).

FAMILY	SPECIES	ANALOGUE			REHABILITATION	
		2019	2020	2022	2020	2022
FABACEAE	*Daviesia* sp.		X		X	X
(continued)	*Gastrolobium spinosum*	X	X	X	X	X
	Gastrolobium sp.	X				
	Gompholobium tomentosum	X	X	X	X	X
	Isotropis cuneifolia	X	X	X	X	X
	Jacksonia floribunda	X	X	X	X	X
	Jacksonia hakeoides			X		X
	Jacksonia nutans			X		
	Jacksonia restioides			X		
	Mirbelia trichocalyx	X	X	X		
	Mirbelia sp.					X
	* *Trifolium hirtum*					X
	Fabaceae sp.				X	X
GOODENIACEAE	*Dampiera carinata*		X	X	X	X
	Dampiera juncea	X				X
	Dampiera spicigera	X	X	X	X	X
	Dampiera oligophylla			X		X
	Dampiera sp.	X	X	X	X	X
	Goodenia reinwardtii		X	X		X
	Lechenaultia biloba				X	X
	Lechenaultia hirsuta			X		
	Scaevola canescens	X	X	X	X	X
	Scaevola glandulifera					X
	Scaevola phlebopetala			X	X	X
	Scaevola sp.					X
	Verreauxia reinwardtii	X				
	Goodeniaceae sp.				X	X
GYROSTEMONACEAE	*Gyrostemon ramulosus*					X
	Tersonia cyathiflora					X
HAEMODORACEAE	*Anigozanthos humilis*	X	X	X	X	X
	Conostylis ?aculeata	X				
	Conostylis androstemma	X	X	X		
	Conostylis angustifolia	X	X	X		
	Conostylis aurea	X	X	X	X	X
	Conostylis candicans		X	X	X	X
	Conostylis canteriata		X	X	X	X
	Conostylis neocymosa	X	X	X		
	Conostylis resinosa		X	X		
	Conostylis crassinerva			X		X
	Conostylis sp.	X	X	X	X	X
	Haemodorum ?venosum		X	X	X	X
	Hemiandra sp. Eneabba (H. Demarz 3687) (P3)	X	X	X	X	X
	Haemodorum sp.	X	X	X	X	X

APPENDIX C: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN TRANSECTS FROM TRIESTE 3D SEISMIC SUREVY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Note: * denotes introduced species; P1-P4 denote priority flora species in brackets (DBCA 2022c, WAH 1998-).

FAMILY	SPECIES	ANALOGUE			REHABILITATION	
		2019	2020	2022	2020	2022
HEMEROCALLIDACEAE	*Arnocrinum preissii*			X		X
	Chamaescilla versicolor	X	X	X	X	X
	Johnsonia pubescens	X	X	X	X	X
	Johnsonia pubescens subsp. *pubescens*			X		X
	Tricoryne soullierae (P1)		X	X	X	X
	Tricoryne sp.	X		X		X
IRIDACEAE	*Patersonia drummondii*	X	X	X		
	Patersonia occidentalis				X	X
	Patersonia sp.					X
LAMIACEAE	*Hemiphora bartlingii*				X	X
	Pityrodia hemigenioides	X	X	X		
	Lamiaceae sp.					X
LAURACEAE	*Cassytha glabella*	X	X	X		X
	Cassytha ?racemosa	X	X	X		
	Cassytha sp.	X	X	X	X	X
LOGANIACEAE	*Orianthera spermacocea*		X	X		
	Phyllangium paradoxum			X	X	X
MALVACEAE	*Guichenotia sarotes*	X	X	X	X	X
	Lasiopetalum drummondii	X	X	X	X	X
MYRTACEAE	*Babingtonia camphorosmae*	X	X	X	X	X
	Babingtonia grandiflora		X	X	X	X
	Beaufortia elegans	X	X	X	X	X
	Calothamnus blepharospermus	X	X	X	X	X
	Calothamnus longissimus	X	X	X		
	Calothamnus quadrifidus subsp. *angustifolius*	X	X	X	X	X
	Calothamnus sanguineus	X	X	X	X	X
	Calothamnus sp.				X	X
	Calytrix cravenii		X	X		X
	Calytrix ?drummondii					
	Calytrix leschenaultii	X			X	X
	Calytrix sapphirina	X	X	X		X
	Calytrix strigosa		X	X		X
	Calytrix sp.	X	X	X		
	Darwinia sanguinea			X		
	Darwinia speciosa	X	X	X	X	X
	Eremaea beaufortioides	X	X	X	X	X
	Eremaea ectadioclada	X	X	X		X
	Eremaea violacea			X		X
	Eremaea violacea subsp. *violacea*	X	X	X	X	X
	Eremaea sp.				X	
	Eucalyptus horistes	X	X			

APPENDIX C: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN TRANSECTS FROM TRIESTE 3D SEISMIC SUREVY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Note: * denotes introduced species; P1-P4 denote priority flora species in brackets (DBCA 2022c, WAH 1998-).

FAMILY	SPECIES	ANALOGUE			REHABILITATION	
		2019	2020	2022	2020	2022
MYRTACEAE	*Eucalyptus todtiana*	X	X	X	X	X
(continued)	*Hypocalymma gardneri* (P3)	X	X	X		X
	Hypocalymma hirsutum	X	X	X		
	Hypocalymma xanthopetalum		X	X	X	X
	Hypocalymma sp.	X	X	X	X	X
	Leptospermum oligandrum	X	X	X	X	X
	Leptospermum spinescens	X	X	X	X	X
	Melaleuca aspalathoides	X	X	X	X	X
	Melaleuca leuropoma	X	X	X	X	X
	Melaleuca trichophylla	X	X	X	X	X
	Melaleuca sp.				X	X
	Pileanthus filifolius	X	X	X	X	X
	Scholtzia laxiflora	X	X	X	X	X
	Thryptomene racemulosa		X	X		X
	Verticordia centipeda					X
	Verticordia densiflora	X	X	X		X
	Verticordia densiflora var. *densiflora*		X	X		
	Verticordia grandis	X	X	X	X	X
	Verticordia nobilis		X	X		
	Verticordia pennigera		X	X	X	X
	Verticordia ?plumosa	X				
	Verticordia sp.	X	X	X		
	Myrtaceae sp.		X	X	X	X
OLACACEAE	*Olax benthamiana*	X	X	X		
ORCHIDACEAE	*Caladenia* sp.	X				X
	Prasophyllum sp.	X				
	Orchidaceae sp.	X	X	X		X
PHYLLANTHACEAE	*Poranthera microphylla*			X	X	X
POACEAE	* *Aira caryophyllea*				X	X
	Amphipogon caricinus var. *caricinus*				X	X
	Amphipogon turbinatus	X	X	X	X	X
	Amphipogon sp.	X	X	X	X	X
	Aristida holathera				X	X
	Austrostipa macalpinei		X	X	X	X
	Eragrostis sp.		X	X		
	Neurachne alopecuroidea	X	X	X	X	X
	* *Vulpia myuros*					X
	* *Vulpia* sp.					X
	Poaceae sp.	X	X	X	X	X
POLYGALACEAE	*Comesperma calymega*		X	X		X
	Comesperma virgatum					X
	Comesperma sp.	X		X	X	X

APPENDIX C: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN TRANSECTS FROM TRIESTE 3D SEISMIC SUREVY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Note: * denotes introduced species; P1-P4 denote priority flora species in brackets (DBCA 2022c, WAH 1998-).

FAMILY	SPECIES	ANALOGUE			REHABILITATION	
		2019	2020	2022	2020	2022
PORTULACACEAE	*Calandrinia corrigioloides*					X
PRIMULACEAE	* *Lysimachia arvensis*					X
PROTEACEAE	*Adenanthos cygnorum*	X				
	Banksia attenuata	X	X	X	X	X
	Banksia candolleana	X	X	X	X	X
	Banksia carlinoides	X	X	X	X	X
	Banksia dallanneyi	X				
	Banksia fraseri var. *crebra* (P3)	X	X	X		
	Banksia hookeriana	X	X	X		
	Banksia lanata			X		
	Banksia nivea	X	X	X	X	X
	Banksia scabrella (P4)	X	X	X		
	Banksia sessilis	X	X	X	X	X
	Banksia shuttleworthiana	X	X	X	X	X
	Banksia sphaerocarpa					X
	Banksia sphaerocarpa var. *sphaerocarpa*	X	X	X	X	X
	Banksia tridentata	X	X	X	X	X
	Banksia sp.				X	X
	Conospermum triplinervium	X	X	X	X	X
	Conospermum unilaterale	X	X	X		X
	Conospermum nervosum					X
	Grevillea biformis subsp. *biformis*	X	X	X		
	Grevillea eriostachya	X	X	X	X	X
	Grevillea shuttleworthiana					X
	Grevillea shuttleworthiana subsp. *canarina*	X	X	X		
	Grevillea sp.				X	
	Hakea auriculata	X	X	X	X	X
	Hakea circumalata	X	X	X	X	X
	Hakea costata	X	X	X		
	Hakea cygnus subsp. *cygnus*			X		
	Hakea eneabba	X	X	X	X	X
	Hakea incrassata	X	X	X	X	X
	Hakea lissocarpha	X	X	X		
	Hakea neospathulata	X	X	X		X
	Hakea polyanthema	X	X	X		X
	Hakea prostrata	X				
	Hakea trifurcata	X	X	X	X	X
	Hakea stenocarpa			X		
	Hakea sp.				X	X
	Isopogon linearis	X	X		X	
	Isopogon tridens	X	X	X	X	X
	Lambertia multiflora	X	X	X	X	X
	Persoonia ?filiformis (P3)	X	X	X		
	Persoonia acicularis	X	X	X	X	X
	Petrophile brevifolia	X	X	X	X	X

APPENDIX C: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN TRANSECTS FROM TRIESTE 3D SEISMIC SUREVY AREA, AUGUST 2019, OCTOBER 2020 AND OCTOBER 2022

Note: * denotes introduced species; P1-P4 denote priority flora species in brackets (DBCA 2022c, WAH 1998-).

FAMILY	SPECIES	ANALOGUE			REHABILITATION	
		2019	2020	2022	2020	2022
PROTEACEAE (continued)	*Petrophile drummondii*	X	X	X	X	X
	Petrophile linearis	X	X	X		X
	Petrophile macrostachya	X	X	X	X	X
	Petrophile scabriuscula	X	X	X		X
	Petrophile shuttleworthiana	X	X	X	X	X
	Petrophile sp.				X	X
	Synaphea xela (P2)	X				
	Xylomelum angustifolium				X	X
	Proteaceae sp.				X	X
RESTIONACEAE	*Alexgeorgea nitens*	X	X	X	X	X
	Chordifex sinuosus	X	X	X	X	X
	Chordifex sp.					X
	Desmocladus asper	X	X	X	X	X
	Desmocladus parthenicus	X	X	X	X	X
	Desmocladus semiplanus	X	X	X	X	X
	Desmocladus sp.			X	X	X
	Lepidobolus chaetocephalus			X		
	Lepidobolus preissianus	X	X	X	X	X
RHAMNACEAE	*Cryptandra myriantha*	X	X	X		X
	Cryptandra sp.	X	X	X		
	Polianthion wichurae	X				
	Stenanthemum notiale subsp. *notiale*	X	X	X	X	X
RUBIACEAE	*Opercularia vaginata*	X	X	X	X	X
RUTACEAE	*Boronia cymosa*	X	X	X	X	X
	Boronia ramosa subsp. *anethifolia*	X				
	Cyanothamnus ramosus subsp. *anethifolius*			X	X	X
	Rutaceae sp.		X	X		
SAPINDACEAE	*Dodonaea ericoides*	X	X	X	X	X
STYLIDIACEAE	*Levenhookia pusilla*		X	X	X	X
	Levenhookia stipitata		X	X	X	X
	Stylidium adpressum		X	X	X	X
	Stylidium crossocephalum	X	X	X	X	X
	Stylidium diuroides			X		
	Stylidium diuroides subsp. *paucifoliatum*		X	X		X
	Stylidium drummondianum (P3)	X	X	X	X	X
	Stylidium flagellum	X	X	X	X	X
	Stylidium kalbarriense				X	X
	Stylidium ponticulus		X	X	X	X
	Stylidium repens		X	X	X	X
	Stylidium sp.	X	X	X	X	X
THYMELAEACEAE	*Pimelea leucantha*		X	X	X	X
	Pimelea imbricata					X
	Pimelea sp.	X	X	X	X	X
VIOLACEAE	*Hybanthus floribundus* subsp. Hill River (E.M. Bennett	X	X	X	X	X
XANTHORRHOEACEAE	*Xanthorrhoea drummondii*	X	X	X	X	X

APPENDIX E: GEOGRAPHIC LOCATIONS OF INTRODUCED TAXA RECORDED IN THE TRIESTE 3D SEISMIC SURVEY AREA, OCTOBER 2022

Note: * indicates introduced species. Co-ordinates represent the start for the transect. A = Analogue, R = Rehabilitation. Under 'surveyed year', number of quadrats in which the weed species' were recorded, where shaded boxes indicate transects were not surveyed. Location Easting/Northings are from start of transects.

SPECIES	TRANSECT	ANALOGUE / REHABILITATION	LOCATION (GDA94 Z50)		SURVEY YEAR		
			EASTING (mE)	NORTHING (mN)	2019	2020	2022
* *Aira caryophyllea*	08S	R	335075	6729508			1
	11S	R	334714	6731825		1	1
* *Arctotheca calendula*	06R	R	332313	6727008			1
* *Hypochaeris glabra*	01S	R	336147	6726494		4	6
	03R	A	338652	6728473		1	2
		R	338651	6728449		5	7
	05S	R	330390	6724168		2	2
	06R	A	332321	6727039			1
		R	332313	6727008		2	3
	07S	R	332552	6731798		2	4
	09R	R	335351	6728088		3	8
	11S	A	334678	6731821			1
		R	334714	6731825		6	9
* *Lysimachia arvensis*	03R	R	338651	6728449			1
* *Trifolium hirtum*	11S	R	334714	6731825			1
* *Ursinia anthemoides*	09R	R	335351	6728088			1
	11S	A	334678	6731821			1
		R	334714	6731825		1	2
* *Vulpia myuros*	11S	R	334714	6731825			2
* *Vulpia* sp.	03R	R	338651	6728449			1
* *Wahlenbergia capensis*	03R	R	338651	6728449		3	3
	07S	R	332552	6731798			1
	09R	A	335412	6728058		1	1
	11S	R	334714	6731825			6

APPENDIX F: AVERAGE SPECIES RICHNESS AND PERENNIAL FOLIAGE COVER ACROSS MONITORED TRANSECTS IN THE TRIESTE 3D SEISMIC SURVEY AREA, AUGUST 2019, OCTOBER 2020, OCTOBER 2022

Note: * results shown as average ± standard error.

Transect	Average Species Richness					Average Perennial Foliage Cover (%)				
	2019	2020		2022		2019	2020		2022	
	Analogue	Analogue	Rehabilitation	Analogue	Rehabilitation	Analogue	Analogue	Rehabilitation	Analogue	Rehabilitation
1S	19.60 ±1.19	20.40 ±1.07	16.20 ±0.57	23.70 ±1.16	22.50 ±1.26	84.79 ± 8.71	73.12 ±4.82	13.20 ±3.44	75.03 ±3.31	20.51 ±2.69
2R	25.50 ±1.37	25.40 ±1.65	16.90 ±0.85	30.20 ±1.73	22.90 ±1.00	75.98 ± 6.51	65.70 ±4.08	8.62 ±0.75	67.16 ±4.43	17.21 ±3.09
3R	18.00 ±0.96	16.70 ±1.37	14.20 ±0.85	20.40 ±1.30	21.60 ±1.24	73.08 ± 7.44	65.60 ±5.9	11.65 ±1.8	80.15 ±9.44	14.60 ±2.65
4R	- -	23.60 ±1.51	15.80 ±0.99	26.40 ±1.49	21.40 ±0.93	- -	64.94 ±6.65	17.14 ±2.78	76.97 ±8.20	40.42 ±6.63
5S	19.90 ±1.06	20.50 ±0.78	16.10 ±1.06	23.60 ±0.83	24.90 ±0.92	57.69 ± 9.77	61.91 ±10.15	10.00 ±1.62	61.47 ±7.72	23.61 ±2.10
6R	20.40 ±0.71	20.00 ±0.97	14.10 ±0.69	24.70 ±1.01	19.60 ±1.18	74.02 ± 5.84	76.19 ±5.71	12.80 ±1.61	89.83 ±6.79	28.38 ±4.36
7S	19.30 ±0.92	19.40 ±1.38	15.80 ±0.65	23.60 ±1.29	20.00 ±0.68	59.58 ± 6.8	73.64 ±7.47	9.93 ±1.09	89.40 ±19.68	25.56 ±2.83
8S	20.80 ±1.12	22.00 ±1.14	15.80 ±1.11	26.80 ±1.19	24.50 ±1.20	64.37 ± 8.67	57.15 ±6.31	10.76 ±1.65	59.63 ±6.58	28.11 ±5.78
9R	18.50 ±0.82	20.40 ±0.5	18.70 ±0.45	25.90 ±0.76	27.80 ±1.30	86.61 ± 9.86	87.37 ±8.89	7.33 ±0.97	95.19 ±10.96	14.32 ±2.22
10S	22.50 ±1.05	21.00 ±1.11	21.30 ±1.39	23.30 ±1.14	25.50 ±1.34	94.04 ± 9.34	92.05 ±6.15	16.77 ±1.89	94.78 ±7.47	29.43 ±3.85
11S	25.20 ±1.17	26.90 ±1.06	17.80 ±1.3	28.09 ±2.97	25.90 ±1.06	67.05 ± 7.56	74.75 ±7.56	7.27 ±1.07	80.62 ±10.44	17.05 ±2.57