

Draft Cycad Salvaging Procedure

Rum Jungle Rehabilitation Procedure

RJ3-4-Pr-008

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Acronyms	Full form
DITT	Department of Industry, Tourism and Trade (NT)
NT	Northern Territory
NTG	Northern Territory Government
NT EPA	Northern Territory Environmental Protection Authority
HSE	Health Safety Environment

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1. Introduction

This Cycad Salvaging Procedure has been developed to guide cycad salvaging within the Rum Jungle Project domain, satellite sites and borrow areas for Stage 3 of the Project. This document falls under the Rum Jungle Rehabilitation Stage 3 Construction Environment Management Plan (CEMP) RJ3-3-MP-003, a sub-plan of the Project Management Plan RJ3-2-MP-002.

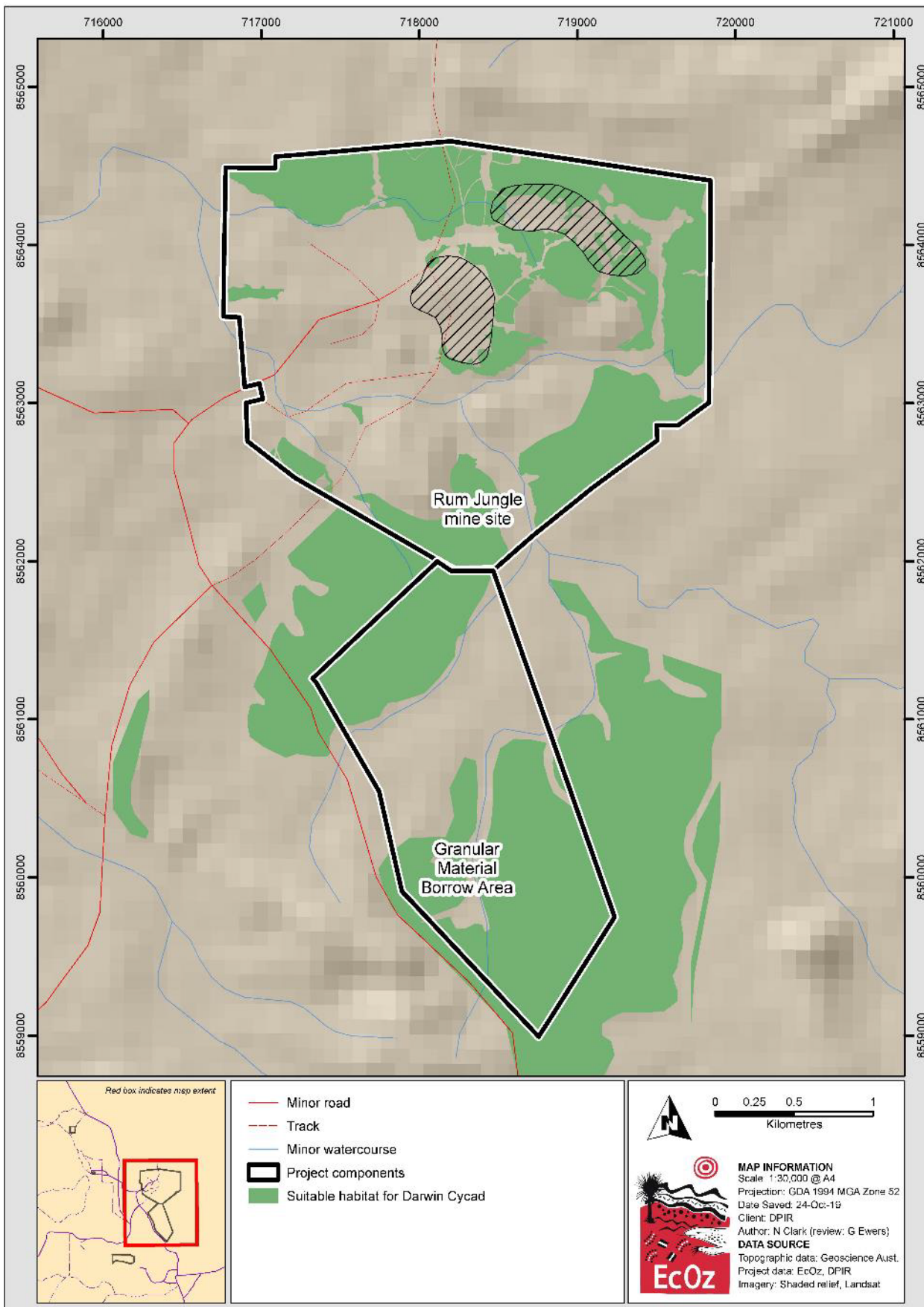
This procedure provides practical guidelines to ensure that multi-stem cycads are salvaged and transplanted within suitable habitat within the Project site – Figure 1. Implementation of this procedure will be supported by the project CEMP. Details of implementation requirements are provided below.

1.1. Background

The translocation of Darwin Cycads (*Cycas armstrongii*) is routinely undertaken for developments in the greater Darwin region. The plant is listed as vulnerable under the *Territory Parks and Wildlife Conservation Act 1976*, under which, land clearing that has been approved by formal procedures of the Northern Territory Government do not require additional permits for removal of the species.

Translocation of cycads has a good chance of success provided it is done correctly and follows good horticultural practices. Because Darwin Cycads are a threatened species and due to the significance of multi-stemmed cycads to the Kungarakana and Warai people, the granular material pits and WSFs have been located such as to minimise the number of cycads that will be disturbed by project activities.

Nevertheless there are a number of plants that will fall within the Project disturbance footprint, of multi-stem cycads will be prioritised for salvage prior to works and replanted in areas of suitable habitat. Figure 1 shows a map of suitable cycad habitat within the Project area.



1.2. Related Documents

This procedure should be read in conjunction with:

- Rum Jungle Rehabilitation Project Draft Environmental Impact Statement (EIS)
- RJ3-3-MP-003 Rum Jungle Construction Environmental Management Plan (CEMP) including:
 - RJ3-4-MP-011 Weed Management Plan (WMP)
 - RJ3-4-MP-013 Cultural Heritage Management Plan (CHMP)
 - RJ3-4-Pr-007 Vegetation Clearing Procedure
 - RJ3-4-F-004 Ground Disturbance Request Form
 - RJ3-4-MP-027 Fire Management Plan (FMP)

1.3. Legislation

Table 1. Relevant instrument for clearing activities

Instrument	Relevance to activities
<i>Aboriginal Sacred Sites Act</i>	The project contains several sacred sites and an AAPA Authority Certificate (C2019/082) has been issued for the Rehabilitation Project.
<i>Bushfire Management Act (NT)</i>	Provides the protection of life, property and the environment through the mitigation, management, and suppression of bushfires, and for related purposes. The project sites are located in the Northern Fire Protection Zone and the Vernon Arafura Fire Management Zone. Fire breaks will need to be established and maintained and permits obtained prior to undertaking any prescribed burning of excess vegetation.
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Commonwealth)</i>	The project requires assessment under the <i>NT Environmental Assessment Act 1982</i> and is a 'controlled action' under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> . The project is being assessed at the level of an Environmental Impact Statement (EIS) under the bilateral agreement between the NT and Australian Governments. The relevant controlling provisions are: <ul style="list-style-type: none"> • listed threatened species and communities (sections 18 and 18A) • protection of the environment from nuclear actions (sections 21 and 22A).
<i>Heritage Act (NT)</i>	Addresses the conservation of the NT's culture and natural heritage. All declared heritage places or archaeological sites, Aboriginal and Macassan sites or objects are protected under the Act. Archaeological heritage sites must not be disturbed or destroyed without a permit. There are no sites on the NT Heritage Register within the project area. There are several sacred sites and two historical sites within the Rum Jungle. If previously unrecorded sites are uncovered by the project activities a Works Approval may be required from the NT Heritage Branch.
<i>Planning Act (NT)</i>	A Land Clearing Permit may be required for unzoned land such as the proposed borrow pit locations on the properties belonging to the Finniss River Aboriginal Land Trust (FRALT) and Coomalie Community Government Council (CCGC) as described in this document.
<i>Territory Parks and Wildlife</i>	Provision for protection, conservation, and sustainable utilisation of wildlife. Land clearing activities are to be undertaken in a manner to reduce harm to wildlife.

Instrument	Relevance to activities
<i>Conservation Act (TPWC Act) (NT)</i>	
<i>Weeds Management Act (NT)</i>	Landholders and occupiers have statutory obligations to manage declared under the <i>Weeds Management Act 2001</i> . A baseline weed survey has been undertaken across the project area and weed management is addressed in the EIS. A further weed survey will be undertaken on the areas to be cleared prior to clearing to reduce the risk of spread. All machinery will be weed/seed free and inspected prior to use on site.

2. Salvaging

Any work salvaging cycads will require a Permit to Take or Interfere with Wildlife as per the procedure set out on the NT Government website: [Permits to take or interfere with wildlife - NT.GOV.AU](http://NT.GOV.AU)

Note that it may take several weeks to months to receive permission so plenty of time needs to be allowed before starting works.

Note also that immediate replanting is preferred over layovers in the nursery or other areas. Thought and consideration to timing of replanting is important to ensure that the replanting area is not too dry, exposed to drying conditions and also not too exposed. It is critical that all replanting activities are carried out by the HSE Land Management Technicians who are all Kungarakan and Warai as cycads are a significant plant for them.

Prior to land clearing, flag any significant plants. Those plants will then be extracted using the following process adapted from Forster (2004):

- Identify area to be cleared following RJ3-4-F-004 (Ground/vegetation Disturbance Request Form), and undertake initial assessment of cycad numbers and preferred plants for relocation.
- Mark each plant on one side with marker paint or fluorescent dye to ensure that the plants are replanted with a north-south orientation similar to their original one.
- Assign an identification number to the plant, and attach a filled-out Parks and Wildlife Commission approved tag.
- Clean around individuals by hand or with machinery.
- Trim excess or badly damaged foliage back to where the rachis is attached to the stems.
- Spray trunks and foliage with an anti-transpirant.
- Loosen soil around each individual using a trenching pattern (either by hand, or ideally with an excavator, backhoe or chain digger).
- Remove each individual whilst attempting to maintain a root ball of soil (ideally this should be done by hand (small plants) or with an excavator or backhoe bucket).
- Trim damaged roots with secateurs, apply fungicide powder.
- Wrap and secure root ball and roots with dry hessian sacking.
- Transport to new locality, taking care to avoid bruising of plant stems. Heavy plants should be loaded using a soft sling that is slung on a backhoe or excavator bucket and packed using rolls of hessian sacking or similar

3. Replanting

Although clearing and revegetation will be undertaken progressively, during the first year of works there may not be remediated sites available for translocation. In this situation, any cycads removed will be translocated to a suitable bushland location as it is preferable that plants be transplanted immediately.

The replanting process will be:

- Dig holes at the translocation locality by hand or with an excavator or back-hoe. The soil should be loosened, and the hole should not be much deeper than the root ball of the plants being transplanted.
- Position plants in new hole, remove hessian sacking and trim any further damaged roots. Ensure that the north-south orientation from the old locality is maintained.
- Pack washed river sand around the roots and root ball. This will provide a suitable substrate for new roots.
- Backfill with the original topsoil removed from the hole.
- Spray the trunks and foliage a second time with anti-transpirant.
- Water thoroughly around each with ordinary water.
- Water (5-9 L) around each root ball with a systemic fungicide.
- Water each plant about once a month (10-20 L) depending on rainfall for the next six months or as appropriate.
- When plants show sign of growth, water and spray thoroughly with a systemic insecticide to avert insect attack. These systemic insecticides should be applied at a high concentration.
- Monitor plants for new growth, death, insect attack, reproduction, gender etc.

4. Implementation

Unless otherwise specified, the provisions within this procedure are the responsibility of the HSE Team. Responsibility for implementation may be delegated to contractors undertaking the work; however, NTG will maintain overarching responsibility for compliance. The HSE Team will conduct pre-clearing inspection and be on-site to oversee the clearing activities.

4.1. Training

Relevant staff will have training provided so that they are able to undertake the environmental management and monitoring activities specified in this procedure. Where training is not suitable or time effective for the project, contractors will be engaged. Training and contractor engagement will comply with:

- RJ3-3-MP-005 Contracts & Procurement Management Plan and
- RJ3-3-MP-006 Benefits Management Plan

4.2. Monitoring

To monitor the salvaging of cycads, a database will be maintained detailing when and where each was removed, potted and replaced. The health of reinstated plants will be monitored periodically.

5. References

Forster P.I. (2004) A translocation protocol for cycads in Queensland, Queensland Herbarium, Environmental Protection Agency, Brisbane (unpublished).

Rum Jungle Rehabilitation Project - Draft Environmental Impact Statement. 15 January 2020

Supplementary Report, Rum Jungle Rehabilitation Project - Environmental Impact Statement. 18 June 2020t