

Memo



Red Ash
Consulting

To: Cameron Vacher, TMR

Date: 13 December 2023

From: Peter Moonie, Red Ash Consulting

Subject: C2CD Translocation Monitoring December 2023 – Preliminary results

This memo has been prepared to document preliminary results from the translocation monitoring event undertaken on 7 Dec 2023. Formal monitoring reports will be provided for both *Leichhardtia coronata* and *Macrozamia pauli-guilielmi* in January 2023.

***Leichhardtia coronata* (formerly *Marsdenia coronata*) – Contract 1 plants**

- Less than half (36.2%) of the translocated plants were alive at the time of the monitoring event. As has been observed previously, the percentage of plants alive in quadrat A1-3 (18.4%) was substantially less than for quadrat A1-1 and A1-2 (36% and 54% respectively). Despite low survival, the rate of decline appears to have stabilised with only a 3.3 percentage point decrease recorded in overall survival compared to the previous monitoring event in June 2022. Interestingly, percentage survival in A1-2 increased from 46% to 54%, suggesting that some plants previously thought to have perished have remained alive and resprouted from the underground tuber.
- Most surviving plants were in good health (67%) and showed minimal signs of stress.
- Most surviving plants (94.4%) plants showed low levels of insect predation.
- No plants were observed flowering or fruiting.
- Weeds levels were generally low (<5% cover) across the site and are unlikely to be affecting plant survival.
- Minimal erosion was observed.
- Pig diggings were observed and may have impacted a small number of plants (<5).

***Leichhardtia coronata* – Contract 2 plants**

- Less than one-third (27.5%) of the translocated plants were alive at the time of the monitoring event, with survival ranging from 18% in quadrat B1-4 to 41.2% in quadrat A1-4. Overall survival decreased by 7.8 percentage points when compared to the previous monitoring event in November 2022. The most substantial decrease was observed within quadrat B1-9, where survival dropped from 30.8% in 2022 to 21.2% in 2023. Interestingly, percentage survival in A1-4 increased from 37.3 % to 41.2%, as two plants previously thought to have perished have remained alive and resprouted from the underground tuber.
- Most surviving plants were in good health (58.9%) and showed minimal signs of stress. 16% were in poor health and are at risk of perishing.
- Most of the plants monitored showed low levels of insect predation.
- No plants were observed flowering or fruiting.
- Weeds levels were generally low (<5% cover) across the site and are unlikely to be affecting plant survival.
- No plants appeared to be impacted by fauna or erosion within any of the monitoring quadrats.

***Macrozamia pauli-guilielmi* plants**

- Less than half (47.5%) of the translocated plants were alive at the time of the monitoring event. This is substantially less than the previous monitoring event in November 2022 where 83.3% of plants were reported to be alive. The greatest loss was recorded in the seedling cohort, where half of those planted appear to have perished in the past year. The adult population was somewhat more resilient, with survival decreasing from 86.7% to 65%. Adult plants have an underground stem and are known to resprout from the stem following disturbance (e.g. fire). It is possible that some adult plants that currently appear dead may resprout following more favourable growing conditions with the onset of rain (refer comments regarding rainfall in the comments/recommendations section).
- Of the alive adult plants, just under half (46.2%) were considered to be in good health, with many individuals showing signs of stress such as leaf discolouration or necrosis. Only one-quarter of seedlings were considered to be in good health, with 41.7% to be in poor health and are at risk of perishing.
- 19.2% of plants were coning at the time of the monitoring event. Cones from the previous year were also present. Seeds from old female cones were collected and handed to Cam Vacher to forward to Brush Turkey Enterprises. Given the age of the seeds, they may not be viable.
- All adults and seedlings showed low rates of insect predation.
- No fauna or erosion impacts were evident.
- Weeds levels were generally low across the site.

Comments/recommendations

- Rainfall received in the three months preceding the monitoring event (Sep, Oct and Nov) was less than half of long term average for that period (93.6mm received compared to the long term average of 203.3mm). October was extremely dry with only 0.4mm received for the month. It is likely that the dry conditions have impacted plant health and survival. This view was supported by observations of *M. pauli-guilielmi* plants where fronds of both adults and seedlings appeared to be recently dead, without evidence of insect or fungal attack. It is recommended that weather forecasts and rainfall events be closely monitored and watering be instigated if dry conditions (i.e. below average rainfall over two months or more) are experienced over the next two to three years.
- Additional seed collection activities should be scheduled for Autumn 2024 to bolster *M. pauli-guilielmi* greenstock held at Brush Turkey Enterprises nursery.
- Planning should commence for supplementary planting of *L. coronata* in 2024. It is recommended that greenstock be gradually hardened off in the Noosa District Landcare (NDLC) nursery three months prior to planting and that planting commence in late winter 2024. Whilst conditions will be cooler, planting in winter will require regular watering as soils are likely to be dry.
- Protocols should be developed for supplementary planting in collaboration with NDLC.
- Protocols should be developed for monitoring of supplementary plantings. Ideally, approximately 20% of plants should be monitored so survival can be recorded and compared to translocation results.

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