

Pacific Highway Upgrade - Nambucca Heads to Urunga Operational Phase
Threatened Flora Monitoring Year 2 Annual Report



Final Report prepared for NSW Roads and Maritime Services
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November 2018

This report, **Pacific Highway Upgrade Nambucca Heads to Urunga Operational Phase - Threatened Flora Monitoring Year 2 Annual Report**, was prepared for NSW Roads and Maritime Services in accordance with the NSW *Environmental Planning and Assessment Act 1979*, the NSW *Biodiversity Conservation Act 2016* and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*.

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Any opinion expressed in this report is the professional, objective opinion of the author.



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Title Page Images

Left: Red Bopple Nut, *Hicksbeachia pinnatifolia*, inflorescence. Translocated plant, TA1
Right: Slender Marsdenia, *Marsdenia longiloba*, in flower. Translocated plant, TA1

Images taken by Peter Richards, October - November 2018.

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GLOSSARY

TERM	MEANING
ANPC	Australian Network for Plant Conservation
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
<i>In-situ</i>	Latin term meaning 'in the original place'. In this report, refers to threatened plants that are being protected where they were found
LGA	Local Government Area
MCoA	Ministers Conditions of Approval
NH2U	Nambucca Heads to Urunga Pacific Highway Upgrade Project
NSW EPA	NSW Environment Protection Authority
NSW OEHS	NSW Office of Environment and Heritage
RMS	NSW Roads and Maritime Services
TA	Translocation Area
TFMP	Threatened Flora Management Plan (Ecos Environmental 2013)
TSC Act	NSW <i>Threatened Species Conservation Act 1995</i>

INTRODUCTION

The Nambucca Heads to Urunga Pacific Highway Upgrade Project (NH2U) is a 22-km-long section of the Pacific Highway upgrade on the Mid North Coast of NSW. The NH2U project comprises the northern half of the Warrell Creek to Urunga section of the Pacific Highway upgrade, which is being built in two stages. Mitigation measures employed during the construction of NH2U included *in-situ* protection, or translocation, and monitoring, of populations of the following eight threatened or rare plant species:

- Spider Orchid *Dendrobium melaleucaphilum* (Endangered, TSC/BC Act)
- Red Bopple Nut *Hicksbeachia pinnatifolia* (Vulnerable, TSC/BC Act & EPBC Act)
- Slender Marsdenia *Marsdenia longiloba* (Endangered, TSC/BC Act; Vulnerable, EPBC Act)
- Rusty Plum *Niemeyera whitei* (Vulnerable, TSC/BC Act)
- Woolfs's Tylophora *Tylophora woollsii* (Endangered, TSC/BC Act & EPBC Act).
- Koala Bells *Artanema fimbriatum* (unlisted, nationally rare)
- Gully Ironbark, Nambucca Ironbark *Eucalyptus ancophila* (unlisted, local endemic species)
- Ford's Goodenia *Goodenia fordiana* (unlisted, nationally rare)

***In-situ* flora populations**

One component of the mitigation measures employed on the NH2U project involved the protection and monitoring of *in situ* plants of Spider Orchid, Slender Marsdenia and Gully Ironbark that remain within the NH2U road reserve and were not directly impacted by the project. Baseline data collection, and construction phase monitoring, has been undertaken on 76 Spider Orchid plants, five Slender Marsdenia plants and a single Gully Ironbark (Ecos Environmental 2014, 2016, 2017) which are located at various points in the road reserve along the NH2U route (Figure 1).

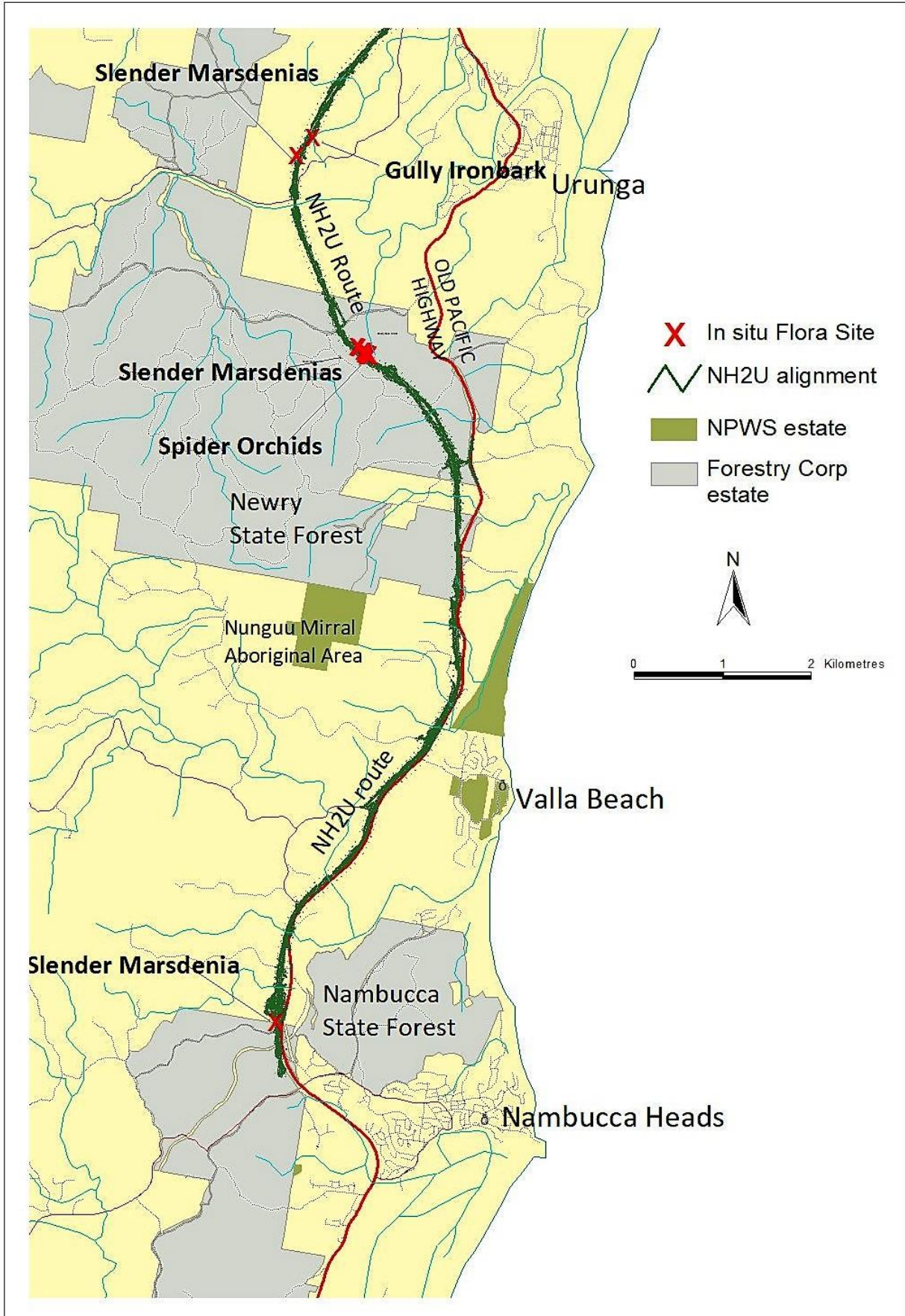


Figure 1: Location of NH2U in-situ threatened or rare flora monitoring sites.

Translocated Flora Species

Where threatened or rare plants were recorded within the NH2U construction footprint and direct impact was unavoidable, a program was developed to guide the translocation and monitoring of Spider Orchid, Red Bopple Nut, Slender Marsdenia, Rusty Plum, Woolls's Tylophora, Koala Bells and Ford's Goodenia from the construction footprint into one of two recipient sites (Translocation Areas, TA1 and TA2) that adjoin the NH2U footprint and are owned and managed by RMS (Figure 2).

The translocations were conducted according to the Warrell Creek to Urunga Threatened Flora Management Plan (TFMP, Ecos Environmental 2013), which was prepared as a condition of approval by the NSW Department of Planning and the Commonwealth Department of Environment.

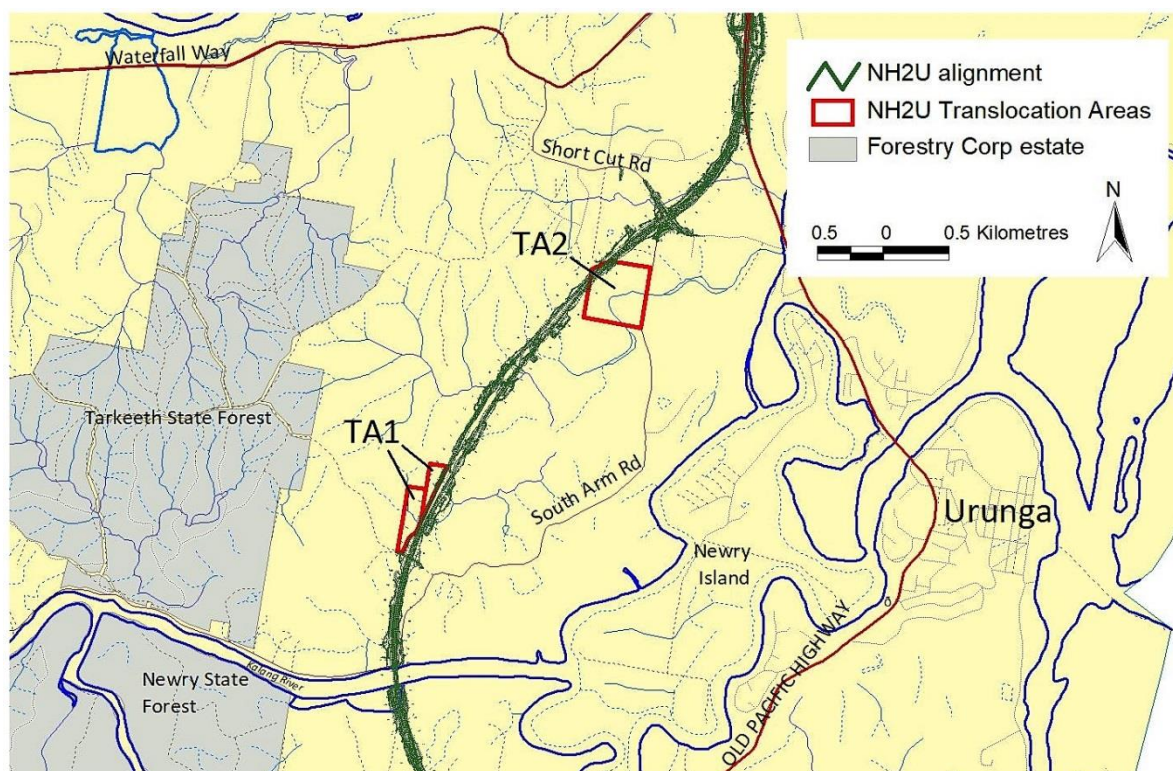


Figure 2: Location of NH2U Translocation Areas (TA1 and TA2).

Translocation methods and planting layout

A thorough, detailed description of the actual salvage and translocation methodology is provided in Ecos Environmental (2013, 2014a, 2016a, 2016b). The summary provided below is also drawn from these Ecos Environmental reports and explains the source of plant material (transplanted from construction footprint or propagated off-site), whether a slow-release fertiliser was applied, and the location within TA1 or TA2 of the transplants or enhancement plantings.

Translocation Area 1

TA1 was divided into ten sectors (A to J, Figure 3) each receiving one species and different introduction treatments, as described below:

- Transplanted from construction footprint with no addition of fertiliser.
 - Sector A Slender Marsdenia
 - Sector B Woolls's Tylophora
- Transplanted from construction footprint with no fertiliser except initial watering with seaweed solution.
 - Sector C Ford's Goodenia

Sector D Koala Bells

Sector E Rusty Plum

- Propagated vegetatively and planted in experimental grids with and without addition of slow-release fertiliser.

Sector F Slender Marsdenia

Sector G Woolls's Tylophora

Sector I Woolls's Tylophora

- Propagated from seed and planted in an experimental grid with and without addition of slow-release fertiliser.

Sector J Slender Marsdenia

- Transplanted from construction footprint with no fertiliser except initial watering with seaweed solution.

Sector H Red Bopple Nut

Translocation Area 2

TA2 consists of two sectors, for the Spider Orchid and Koala Bells (Figure 4).

- Spider Orchid transplanted from construction footprint, no fertiliser addition – Sector A
- Koala Bells population enhancement, no fertiliser addition – Sector B

Individuals were planted at a regular spacing, with rows about 10m apart and individual plants about 5 metres apart along rows. Where a sector was on a hill slope, grid lines were laid out parallel with the slope contour. This facilitated comparison of species performance in relation to slope position.

Monitoring, to date, has been undertaken for a total of 681 translocated plants (Ecos Environmental 2014, 2016, 2016a) as detailed in Table 1 below.

Table 1: Number and location of translocated plants and enhancement plantings at NH2U Translocation Areas.

Translocation Area (TA)	Species	Sector / Method	Number of plants
TA1	Slender Marsdenia	Sector A – transplants	104
		Sector F – population enhancement (veg) & fertilizer experiment	90
		Sector J – population enhancement (seed) & fertilizer experiment	103
	Woolls's Tylophora	Sector B – transplants	42
		Sector G – population enhancement (veg) & fertilizer experiment	87
		Sector I – population enhancement (veg)	51
	Rusty Plum	Sector E – transplants and population enhancement (seed)	3 trees 40 seeds
	Red Bopple Nut	Sector H - transplant	1
	Koala Bells	Sector D - transplants	35
	Ford's Goodenia	Sector C – transplants	5 patches
TA2	Spider Orchid	Sector A - transplants	55
	Koala Bells	Sector B - population enhancement (veg)	69

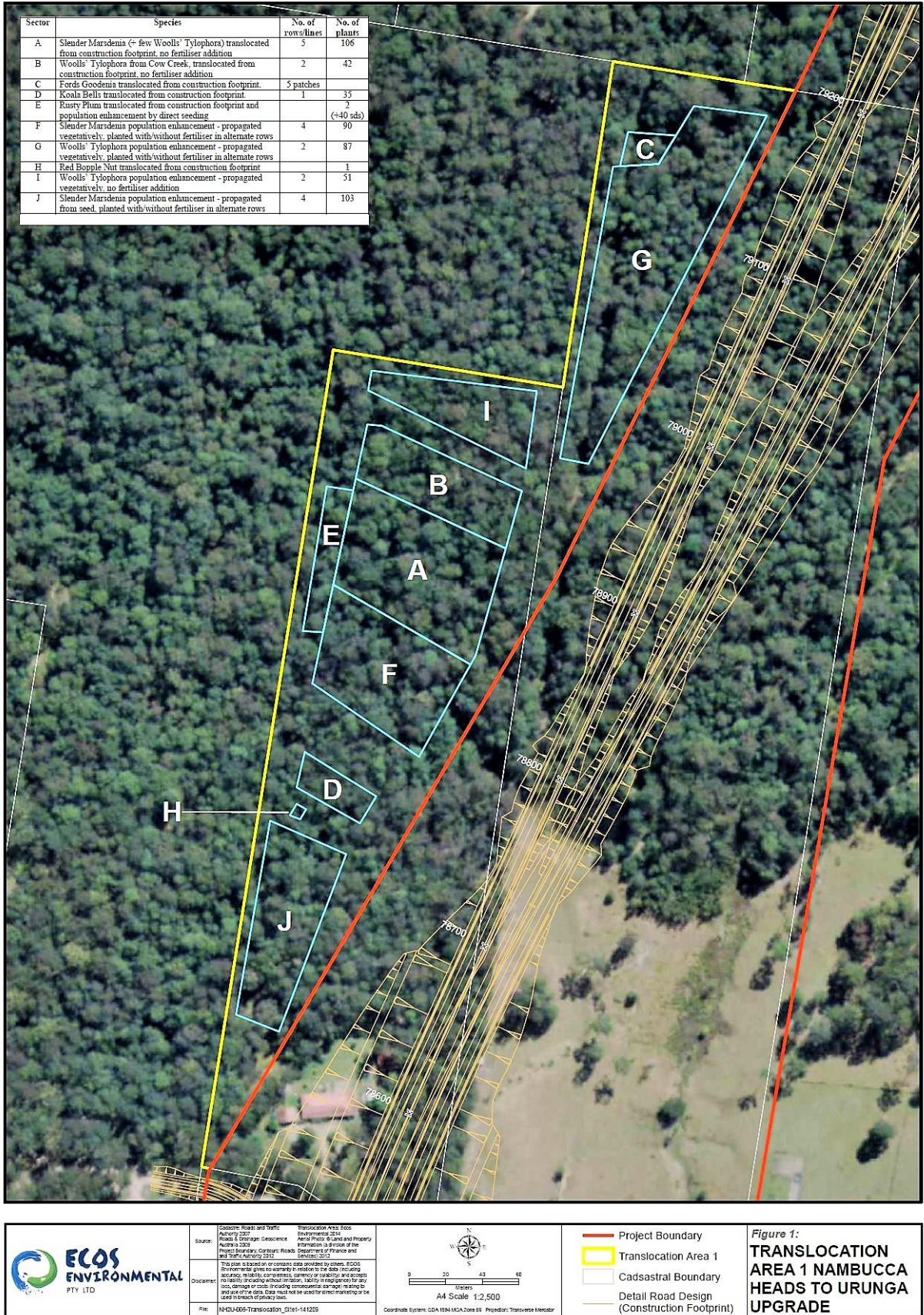


Figure 3: Translocation Area 1 (TA1) showing sectors supporting different species and treatments (from Ecos Environmental 2016a).

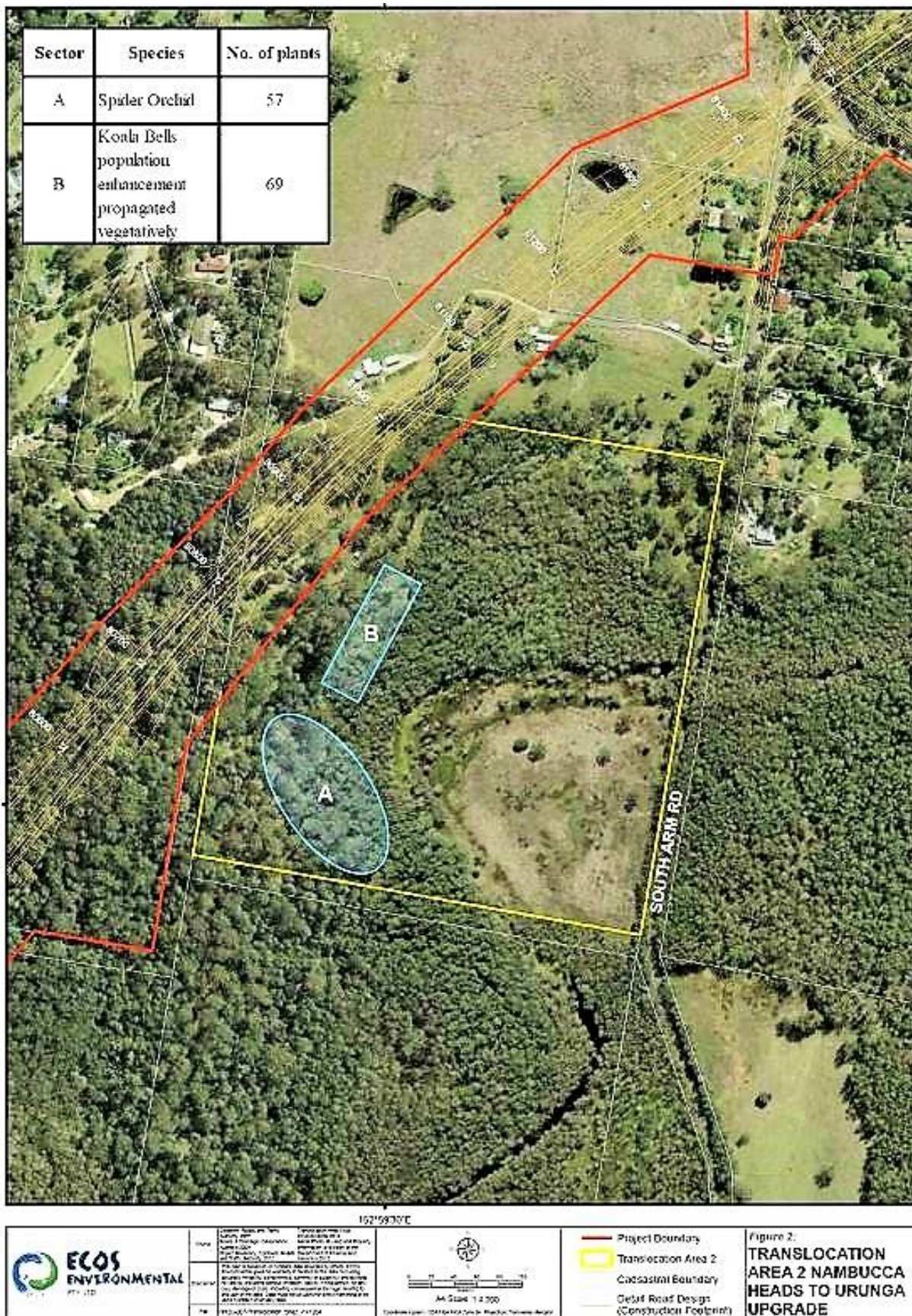


Figure 4: Translocation Area 2 (TA2) showing sectors supporting different species and treatments (from Ecos Environmental 2016a).

Objectives of translocation

The objectives of the translocation project set out in the TFMP are:

- To salvage and re-establish impacted individuals of threatened (TSC/EPBC Act) species.
- To re-establish species at a recipient site near the original site with closely matching habitat and long-term security of tenure.
- To enhance the size and genetic diversity of the translocated population by propagation and introduction of individuals additional to those salvaged from the road footprint.
- To maintain good quality habitat to the relocation site(s).
- To preserve individuals of threatened species *in-situ* wherever possible and limit translocation to plants within the highway footprint and construction buffer.

In accordance with the Ministers' Conditions of Approval (MCoA) for the TFMP, an annual monitoring report is to be prepared which addresses the monitoring goals, provides an evaluation of the effectiveness of the mitigation measures against performance indicators, documents any corrective actions implemented, and identifies recommendations for any adaptive management.

Upon completion of the construction phase of the NH2U upgrade, responsibility for operational management passed to the NSW Roads and Maritime Services (RMS). This report describes the results of Year 1 (operational phase) monitoring of *in situ* and translocated flora for the NH2U upgrade. It should be noted that, upon completion of construction phase monitoring of translocated plants, monitoring of those species not listed as threatened under the TSC (BC) Act or the EPBC Act (Koala Bells and Ford's Goodenia) has been discontinued.

MONITORING METHODS

Monitoring of all in-situ and translocated plants was undertaken over October and November 2018.

The following description of the NH2U flora monitoring methodology is adapted from Ecos Environmental (2014 to 2017). During the NH2U construction phase, monitoring of transplants was conducted every 3 months in Year 1, every 6 months in Year 2 and annually in Year 3. Population enhancement individuals were monitored twice in Year 1 thence at the same time as transplanted individuals. Ongoing monitoring during the NH2U operational phase is to be undertaken annually for a minimum five years.

Each transplanted and propagated plant was given a unique identification number which was written on flagging tape and attached to the plant itself, or to its protective wire cage. Transplants were re-located in the field using a hand-held GPS to navigate to a set of coordinates that had been recorded when the plants were introduced to the sites (in some cases coordinates were not available – in such cases a thorough search of the relevant sector was undertaken by the author, and each transplant found had locality coordinates recorded with a GPS unit). Data were recorded as per Section 3.8 of the TFMP and listed in Table 2 below.

Table 2: Monitoring data recorded for each translocated species.

Data Recorded	Slender Marsdenia	Woolfs's Tylophora	Rusty Plum	Red Bopple Nut	Spider Orchid
Monitoring Number	y	y	y	y	y
Date	y	y	y	y	y
Line	y	y	-	-	-
Source Label	y	y	y	-	y
Translocation Label	y	y	y	y	y
Species - Current ID	y	y	-	-	-
Condition Class	y	y	y	y	y
No. leaves	y	y	-	-	
Height (cm)	y	y	y	y	
New Shoots – New Active Growth (Y/N)	y	y	y	y	y
Comment	y	y	y	y	y
No. of pseudobulbs with leaves	-	-	-	-	y
Length of the longest pseudobulb	-	-	-	-	y
Waypoint	y	y	y	y	y
Coordinates	y	y	y	y	y

Condition Class Scores

The key attribute for evaluating species survival and performance was Condition Class, which was scored on a scale of 0 to 5. The scores were defined differently according to plant type, as detailed below in Table 3, Table 4 and Table 5.

Table 3: Condition scores applied to Slender Marsdenia and Woolfs's Tylophora.

Score	Condition
0	dead
1	stem died back to ground, no leaves or green stem, live stem stub may be present
2	plant < 75 cm tall; stem with leaves, with or without new shoots (active growth), or green leafless stem
3	plant > 75 cm tall, stem with leaves, with or without new shoots (active growth), if green leafless stem <1m or leaves discoloured score as 2
4	plant > 1.5m tall with > 15 leaves, mature or nearing maturity
5	plant flowering or seeding

Table 4: Condition scores applied to Rusty Plum and Red Bopple Nut.

Score	Condition
0	dead
1	leafless and no sign of re-shooting
2	pruned foliage retained, or small amount of re-shooting after defoliating, or foliage sparse/discoloured (<40 cm tall Koala Bells)
3	vigorous re-shooting (>40 cm tall Koala Bells)
4	crown recovering, foliage healthy
5	growing actively, flowering or seeding recorded

Table 5: Condition scores applied to Spider Orchid.

Score	Condition
0	dead
1	pseudobulbs discoloured/grazed/withering, no new growth
2	pseudobulbs healthy in colour, not withering, no new growth
3	plant small, not many healthy pseudobulbs, new growth occurring
4	several healthy pseudobulbs present, new growth occurring
5	several good sized, healthy pseudobulbs, flowering or seeding recorded

Data Analysis

Monitoring data were stored and processed in Excel™ spreadsheets.

Species survival rate was calculated as:

$$(no. \text{ of individuals in condition classes } 2+3+4+5 / \text{total no. plants}) \times 100$$

Species 'thrive' rate (a term used by Ecos Environmental to describe the general trend in vigour of plants in individual sectors or subject to different treatments) was calculated as:

$$(number \text{ of individuals in condition classes } 3+4+5 / \text{total no. plants}) \times 100$$

The thrive rate provides, according to Ecos Environmental (2016a) a better indication of the percentage of plants likely to reach reproductive maturity. Mean species height was calculated for all plants including those with zero height (ie plants that had died back to the ground – condition class 1 - not just plants in condition classes 2 to 5).

YEAR 1 MONITORING RESULTS AND RECOMMENDATIONS

The Year 1 NH2U threatened flora monitoring report (Richards 2017) found that whilst the survival of Slender Marsdenia transplants was comparable to that achieved in other translocation projects, many transplants had died back as a result of a very dry winter-spring in 2017. Furthermore, it was discovered that the Woolls's Tylophora plants were in fact the common *Tylophora paniculata*, and that the Rusty Plum enhancement plantings had been almost entirely lost. Therefore, the following recommendations were made:

1. Discontinue monitoring of *Tylophora paniculata* plants in Sectors G and I in TA1.
2. Direct seed an additional 40 Rusty Plum seeds into Sector E in TA1.
3. Install protective cages on all new and surviving Rusty Plum enhancement plantings.

The direct seeding of Rusty Plum seed, and installation of cages, was undertaken in October 2018 and is described in a separate report (Richards 2018). As of this current monitoring period, Sectors G and I in TA1 will no longer be monitored.

RESULTS - IN-SITU FLORA MONITORING**APPENDIX 1: Monitoring Results – all *in situ* flora Oct – Nov 2018****Spider Orchid**

Note: where more than one plant occurs, the lowest plant is recorded first and the highest plant last. If score is the same for all plants, then only one score is recorded. Some scores are given only for the largest of multiple plants.

Monitoring No	Date	Number of plants	Condition Class	Number of pseudobulbs	Number of pseudobulbs with leaves	Number of pseudobulbs with leaves Oct2017	Change in No of pseudobulbs Oct 2017 to Oct 2018	Length of the longest pseudobulb overall (cm)	Length of the longest pseudobulb more than one plant (cm)	New growth	Comment
so-59	26-Oct-18	1	1	3	1	1	Same	1		n	On Grey Gum sapling. Will vanish when bark shed.
so-61	26-Oct-18	2	3	9	1	1	Same	2.5		y	
	26-Oct-18		3	5	3	1	Increase	1.5		y	
A	26-Oct-18	2	3	7	5		n/a	2		y	re-found nr so-39
			2	6	4		n/a	1		y	re-found nr so-39
so-39	26-Oct-18	2	3	10	3	0	Increase	9		y	Both plants OK in 2018.
	26-Oct-18		3	5	2	0	Increase	5		y	Both plants OK in 2018.
so-41	26-Oct-18	4	3	9	5	4	Increase	25		y	Top of host stem with 2 plants on it has broken off. 2 lower plants with old inflorescences
	26-Oct-18		3	14	4	4	Same	20		y	
	26-Oct-18		3	7	4	2	Increase	3		y	
	26-Oct-18		3	11	8	6	Increase	5		y	
so-40	26-Oct-18	2	3	19	9	11	Decrease	15		y	3 plants present, lowest 2 monitored
	26-Oct-18		3	11	8	7	Increase	5		y	
so-69	26-Oct-18	3	3	9	5	4	Increase	7		y	
	26-Oct-18		3	10	4	3	Increase	7		y	
	26-Oct-18		3	8	6	5	Increase	3.5		y	
so-70	26-Oct-18	1	0			1	n/a				not found
B	26-	2	3	12	5	4	Increase	4		y	

Monitoring No	Date	Number of plants	Condition Class	Number of pseudobulbs	Number of pseudobulbs with leaves	Number of pseudobulbs with leaves Oct2017	Change in No of pseudobulbs Oct 2017 to Oct 2018	Length of the longest pseudobulb overall (cm)	Length of the longest pseudobulb more than one plant (cm)	New growth	Comment
	Oct-18						Decrease				
	26-Oct-18		3	8	4	3	Increase	3		y	
C	26-Oct-18	1	0			3	n/a				not found
D	26-Oct-18	0	0								dead
so-71	26-Oct-18	3	1	3	2		n/a	1		n	
	26-Oct-18		3	5	3	2	Increase	1		y	
	26-Oct-18		2	5	2	2	Same	1		n	
	26-Oct-18		0			2	n/a				gone
so-72	26-Oct-18	6	2	5	1	4	Decrease	1		n	
	26-Oct-18		2	5	1		n/a	5		n	
	26-Oct-18		2	4	2		n/a	4		n	
	26-Oct-18		3	5	4		n/a	1		y	
	26-Oct-18		3	9	4		n/a	1		y	
	26-Oct-18		2	4	3		n/a	1		n	
F	26-Oct-18	3	3	5	4	3	Increase	24	24	y	
	26-Oct-18		3	6	4	3	Increase			y	
	26-Oct-18		3	13	4	4	Same			y	
G	26-Oct-18	1	3	5	1	2	Decrease	1.5		n	
H	26-Oct-18	2	3	7	2	1	Increase	2		y	
	26-Oct-18		0			2	n/a				gone

Monitoring No	Date	Number of plants	Condition Class	Number of pseudobulbs	Number of pseudobulbs with leaves	Number of pseudobulbs with leaves Oct2017	Change in Number of pseudobulbs Oct 2017 to Oct 2018	Length of the longest pseudobulb overall (cm)	Length of the longest pseudobulb more than one plant (cm)	New growth	Comment
	18										
M	26-Oct-18	0	0				n/a				not found
N	26-Oct-18	1	3	8	5	4	Increase	12		y	host tree has snapped below orchid
so-27	26-Oct-18	3	2	5	1	3	Decrease	1		n	
	26-Oct-18		2	10	0	6	Decrease	2		n	
	26-Oct-18		2	12	2	2	Same	2		n	
so-26	26-Oct-18	1	2	6	3	5	Decrease	2.5		n	3 plants on tree - lowest monitored
so-22	26-Oct-18	1	3	18	12	8	Increase	9		y	many tiny Pbs at base with leaves - some new ones too
O	26-Oct-18	2	3	6	5	5	Same	2		y	1 plant either side of flagging. 1 more plant further up.
	26-Oct-18		3	8	7	6	Increase	20		y	
P	26-Oct-18	1	3	7	4	4	Same	3		y	1 other plant high up on tree
Q	26-Oct-18	1	3	10	6	6	Same	2.5		y	
so-21	26-Oct-18	1	3	10	1	1	Same	23		y	May have flowered this season
R	26-Oct-18	2	0			5	n/a				not found
	26-Oct-18		0			3	n/a				not found
so-19	26-Oct-18	1	3	5	4		n/a	3.5		y	not found
so-17	26-Oct-18	0	0				n/a				gone
so-16	26-Oct-18	1	2	5	1	2	Decrease	4		n	On broken stem
so-15	26-Oct-18	3	2	12	2	1	Increase	1.5		n	
	26-Oct-18		3	9	4	3	Increase	3		y	

Monitoring No	Date	Number of plants	Condition Class	Number of pseud obulbs	Number of pseud obulbs with leaves	Number of pseud obulbs with leaves Oct2017	Change in No of pseud obulbs Oct 2017 to Oct 2018	Length of the longest pseud obulb overall (cm)	Length of the longest pseud obulb more than one plant (cm)	New growth	Comment
	26-Oct-18		3	10	8	5	Increase	2		y	
S	26-Oct-18	0	0			3	n/a				not found
	26-Oct-18	0	0			3	n/a				not found
	26-Oct-18	0	0			4	n/a				not found
so-14	26-Oct-18	1	2	13	1	3	Decrease	7		n	One plant gone. Top of host stem snapped off.
so-12	26-Oct-18	2	2	7	1	4	Decrease	2		n	Poor cond on dead host
	26-Oct-18		0			0	n/a				gone
so-10	26-Oct-18	1	0			5	n/a				not found
so-11	26-Oct-18	2	2	8	1	4	Decrease	2.5		n	
	26-Oct-18		2	7	1	5	Decrease	2.5		n	
so-6	26-Oct-18	2	3	4	4	3	Increase	3		y	
	26-Oct-18		3	9	3	3	Same	10		y	
so-5	26-Oct-18	1	2	12	2	3	Decrease	3.5		n	
so-4	26-Oct-18	1	3	7	4	3	Increase	3.5		y	
so-7	26-Oct-18	2	3	6	2	3	Decrease	3		y	
	26-Oct-18		3	14	7	3	Increase	3.5		y	
so-8	26-Oct-18	3	3	8	1	2	Decrease	3		y	
	26-Oct-18		3	9	5	4	Increase	6		y	
	26-Oct-18		3	5	2	3	Decrease	2		y	
so-9	26-Oct-18	2	2	5	2	3	Decrease	1		n	tiny plants on fallen tree,

Monitoring No	Date	Number of plants	Condition Class	Number of pseudobulbs	Number of pseudobulbs with leaves	Number of pseudobulbs with leaves Oct2017	Change in Number of pseudobulbs Oct 2017 to Oct 2018	Length of the longest pseudobulb overall (cm)	Length of the longest pseudobulb more than one plant (cm)	New growth	Comment
	Oct-18						Decrease				leaning on Sally Wattle
	26-Oct-18		2	4	1	2	Decrease	1		n	

Slender Marsdenia and Gully Ironbark

Site No	Species	Chainage	Date	Condition 2018	Ht (m)	No. lvs	New shoots	Comment 2018
ML 119	<i>Marsdenia longiloba</i>	62100	31-Oct-18	1				Died back. Healthy vine observed c. 30m upstream.
ML 2010-1	<i>Marsdenia longiloba</i>	75000	31-Oct-18	3	0.5	10	y	On <i>Notelaea longifolia</i> . Re-flagged
ML 2010-3	<i>Marsdenia longiloba</i>	75000	31-Oct-18	5	2.1	15	y	In bud. Pics on camera.
UTW3	<i>Marsdenia longiloba</i>	78450	31-Oct-18	2	0.2	4	n	1 'seedling' also present. Downhill plant.
UTW3	<i>Marsdenia longiloba</i>	78450	31-Oct-18	3	0.1	4	y	Uphill plant.
UTW4	<i>Marsdenia longiloba</i>	78450	31-Oct-18	3	0.5	26	y	On broken bloodwood sapling. Only 1 plant seen.
EA	<i>Eucalyptus ancophila</i>	78850	31-Oct-18	3				Same as last year.

APPENDIX 2: Monitoring Results – All Translocated Flora Oct – Nov 2018

Slender Marsdenia - Sector A

No	Date	Species	Line	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
1	Nov-18	<i>Marsdenia longiloba</i>	L7 east	ML14	1				db. <i>Parsonia dorriogensis</i> on cage
2	Nov-18	<i>Marsdenia longiloba</i>	L7	ML2010-2	1				db
3	Nov-18	<i>Marsdenia longiloba</i>	L7	MLN-5	1				db
4	Nov-18	<i>Marsdenia longiloba</i>	L7	ML14A	1				db
5	Nov-18	<i>Marsdenia longiloba</i>	L7	ML14A	1				db. <i>P. dorriogensis</i> in cage
6	Nov-18	<i>Marsdenia longiloba</i>	L7	ML14A	3	7	30	y	<i>Tylophora paniculata</i> ?
7	Nov-18	<i>Marsdenia longiloba</i>	L7	ML13	1				db
8	Nov-18	<i>Marsdenia longiloba</i>	L7	ML14A	1				db

No	Date	Species	Line	Source Label	Con d	No . lvs	Heig ht (cm)	New Shoo ts (Y/N)	Comment
9	Nov-18	Marsdenia longiloba	L7	ML11	1				db
10	Nov-18	Marsdenia longiloba	L7	UTW-2	5	40	400	y	In fruit - one slender pod 8cm x 1cm, up high on vine
11	Nov-18	Marsdenia longiloba	L7	UTW-2	4	20	120	y	phone pics
12	Nov-18	Marsdenia longiloba	L7	TWN-1	1				db
13	Nov-18	Marsdenia longiloba	L7	UTW-2	2	6	6	y	resprout
14	Nov-18	Marsdenia longiloba	L7	ML20	3	6	90	y	
15	Nov-18	Marsdenia longiloba	L7	ML21	1				db
16	Nov-18	Marsdenia longiloba	L7	TWN-1	0				gone
17	Nov-18	Marsdenia longiloba	L7	UTW-2	1				db
18	Nov-18	Marsdenia longiloba	L7	UTW-2	1				db
19	Nov-18	Marsdenia longiloba	L7	UTW-1	1				db
20	Nov-18	Marsdenia longiloba	L7 west	UTW-4	1				db
21	Nov-18	Marsdenia longiloba	L6 west	TWN-1	2	2	40	y	
22	Nov-18	Marsdenia longiloba	L6	TWN-1	1				db
23	Nov-18	Marsdenia longiloba	L6	TWN-1	1				db
24	Nov-18	Marsdenia longiloba	L6	TWN-1	1				db
25	Nov-18	Marsdenia longiloba	L6	UML-6	1				db
26	Nov-18	Marsdenia longiloba	L6	UML-6	2	9	90	n	
27	Nov-18	Marsdenia longiloba	L6	MLN-6	3	4	50	y	
28	Nov-18	Marsdenia longiloba	L6	UML-5	2	2	80	n	
28b/41	Nov-18	Marsdenia longiloba	L6	UML-5	1				db
29	Nov-18	Marsdenia longiloba	L6	ML17	5	40	500	y	In flower on <i>Cryptocarya rigida</i>
30	Nov-18	Marsdenia longiloba	L6	new near ML18	3	12	200	y	on <i>Cryptocarya rigida</i>
30b/42	Nov-18	Marsdenia longiloba	L6	UML-5	5	30	220	y	In flower, on <i>Cordyline stricta</i> - photos
31	Nov-18	Marsdenia longiloba	L6	new near ML18	1				db
32	Nov-18	Marsdenia longiloba	L6	MLN-6	3	7	110	y	
33	Nov-18	Marsdenia longiloba	L6	ML18	1				db
33b/40	Nov-18	Marsdenia longiloba	L6	ML21	0				gone
34	Nov-18	Marsdenia longiloba	L6	ML18	3	6	10	y	resprout
35	Nov-18	Marsdenia longiloba	L6	MLN6	4	16	240	y	Climbing <i>Cryptocarya rigida</i>
36	Nov-18	Marsdenia longiloba	L6	ML19	3	12	100	y	
37	Nov-18	Marsdenia longiloba	L6	ML19	4	40	190	y	Climbing dead sapling
38	Nov-	Marsdenia	L6	ML20	1				db

No	Date	Species	Line	Source Label	Con d	No . lvs	Heig ht (cm)	New Shoo ts (Y/N)	Comment
	18	longiloba							
39	Nov-18	Marsdenia longiloba	L6 east	ML21	4	30	180	y	Climbing Ripogonum fawcettianum & Smilax glyciphylla
43	Nov-18	Marsdenia longiloba	L5	ML18	1				db
44	Nov-18	Marsdenia longiloba	L5	ML30	3	5	20	y	large-leaved form
45	Nov-18	Marsdenia longiloba	L5	TW29	3	6	10	y	resprout
46	Nov-18	Marsdenia longiloba	L5	ML32	1				db
47	Nov-18	Marsdenia longiloba	L5	new adj. ML33	3	4	5	y	resprout
48	Nov-18	Marsdenia longiloba	L5	new adj. ML33	2	5	90	n	poor condition
49	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
50	Nov-18	Marsdenia longiloba	L5	MLN-2	5	40	270	y	In flower on Cryptocarya rigida
51	Nov-18	Marsdenia longiloba	L5	ML15	3	5	50	y	
52	Nov-18	Marsdenia longiloba	L5	ML15	1				db
53	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
54	Nov-18	Marsdenia longiloba	L5	new adj. ML33	2	2	100	n	poor condition
55	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
56	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
57	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
58	Nov-18	Marsdenia longiloba	L5	ML45-	1				db
59	Nov-18	Marsdenia longiloba	L5	ML45-11	3	6	80	y	T. paniculata
60	Nov-18	Marsdenia longiloba	L5	ML47-1	1				db
61	Nov-18	Marsdenia longiloba	L5	ML47-2	1				db
62	Nov-18	Marsdenia longiloba	L5	ML45-4	1				db
63	Nov-18	Marsdenia longiloba	L5 west	ML45-	1				db
106	Nov-18	Marsdenia longiloba	L4	ML2010-3	1				db
107	Nov-18	Marsdenia longiloba	L4	ML2010-3	3	7	60	y	
108	Nov-18	Marsdenia longiloba	L4	ML2010-3	3	8	12	y	resprout
109	Nov-18	Marsdenia longiloba	L4	MLN-4	1				db
110	Nov-18	Marsdenia longiloba	L4	ML126	4	18	130	y	
111	Nov-18	Marsdenia longiloba	L4	ML126	2	2	10	n	
112	Nov-18	Marsdenia longiloba	L4	ML127	3	5	110	y	
113	Nov-18	Marsdenia longiloba	L4	ML2010-3	1				db
114	Nov-18	Marsdenia longiloba	L4	ML2010-3	3	11	80	y	
115	Nov-18	Marsdenia longiloba	L4	ML2010-3	1				db

No	Date	Species	Line	Source Label	Con d	No . lvs	Heig ht (cm)	New Shoo ts (Y/N)	Comment
116	Nov-18	Marsdenia longiloba	L4	ML127	1				db
117	Nov-18	Marsdenia longiloba	L4	MLN-3	3	12	75	y	
118	Nov-18	Marsdenia longiloba	L4	MLN-3	2	3	10	n	resprout
119	Nov-18	Marsdenia longiloba	L4	MLN-3	1				db
120	Nov-18	Marsdenia longiloba	L4	MLN-3	1				db
121	Nov-18	Marsdenia longiloba	L4	ML2010-4	1				db
122	Nov-18	Marsdenia longiloba	L4	ML2010-4	1				db
123	Nov-18	Marsdenia longiloba	L4	MLN-4	3	11	90	y	
124	Nov-18	Marsdenia longiloba	L4	MLN-4	1				db
125	Nov-18	Marsdenia longiloba	L4	TWN-2	1				db
126	Nov-18	Marsdenia longiloba	L4	TWN-2	1				db
127	Nov-18	Marsdenia longiloba	L4	TWN-2	1				db
128	Nov-18	Marsdenia longiloba	L3	MLN-4	1				db
129	Nov-18	Marsdenia longiloba	L3	MLN-4	1				db
130	Nov-18	Marsdenia longiloba	L3	MLN-4	3	2	190	y	2 lvs and long new shoot
131	Nov-18	Marsdenia longiloba	L3	MLN-4	1				db
132	Nov-18	Marsdenia longiloba	L3	MLN-3	1				db
133	Nov-18	Marsdenia longiloba	L3	MLN-3	1				db
134	Nov-18	Marsdenia longiloba	L3	MLN-3	1				db
135	Nov-18	Marsdenia longiloba	L3	ML3	1				db
136	Nov-18	Marsdenia longiloba	L3	ML3	1				db
137	Nov-18	Marsdenia longiloba	L3	ML3	2	1	90	n	poor condition
138	Nov-18	Marsdenia longiloba	L3	ML3	1				db
139	Nov-18	Marsdenia longiloba	L3	ML3	1				db
140	Nov-18	Marsdenia longiloba	L3	ML2	3	7	160	y	on Trochocarpa laurina
141	Nov-18	Marsdenia longiloba	L3	ML2	1				db
142	Nov-18	Marsdenia longiloba	L3	ML3	1				db
143	Nov-18	Marsdenia longiloba	L3	ML3	1				db
144	Nov-18	Marsdenia longiloba	L3	UTW10	1				db
145	Nov-18	Marsdenia longiloba	L3	UTW10	1				db
146	Nov-18	Marsdenia longiloba	L3	UML8	1				db
147	Nov-18	Marsdenia longiloba	L3	ML3	1				db
148	Nov-18	Marsdenia longiloba	L3	ML3	3	5	15	y	resprout

No	Date	Species	Line	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
	18	longiloba							

Slender Marsdenia - Sector F

No	Species	Line	Date	Cond.	No. leaves	Height (cm)	New Shoots (Y/N)	Comment
F1	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F2	Marsdenia longiloba	Line 1 fert	Nov-18	3	13	90	y	
F3	Marsdenia longiloba	Line 1 fert	Nov-18	3	5	110	y	
F4	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F5	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F6	Marsdenia longiloba	Line 1 fert	Nov-18	2	6	80	n	dying
F7	Marsdenia longiloba	Line 1 fert	Nov-18	2	4	60	n	Yellowed leaves
F8	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F9	Marsdenia longiloba	Line 1 fert	Nov-18	3	2	20	y	resprout
F10	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F11	Marsdenia longiloba	Line 1 fert	Nov-18	3	6	10	y	resprout
F12	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F13	Marsdenia longiloba	Line 1 fert	Nov-18	3	12	180	y	on Cordyline stricta
F14	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F15	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F16	Marsdenia longiloba	Line 1 fert	Nov-18	3	5	10	y	resprout
F17	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F18	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F19	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F20	Marsdenia longiloba	Line 1 fert	Nov-18	2	2	40	n	
F21	Marsdenia longiloba	Line 1 fert	Nov-18	3	6	25	y	resprout
F22	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
NF23	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF24	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF25	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF26	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF27	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF28	Marsdenia longiloba	Line 2 no fert	Nov-18	3	6	65	y	

No	Species	Line	Date	Cond	No. leaves	Height (cm)	New Shoots (Y/N)	Comment
NF29	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF30	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF31	Marsdenia longiloba	Line 2 no fert	Nov-18	4	18	150	y	on Tabernaemontana pandacaqui
NF32	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF33	Marsdenia longiloba	Line 2 no fert	Nov-18	3	4	5	y	under dense Cissus hypoglauca
NF34	Marsdenia longiloba	Line 2 no fert	Nov-18	3	10	65	y	
NF35	Marsdenia longiloba	Line 2 no fert	Nov-18	3	4	40	y	reshooting
NF36	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF37	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF38	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF39	Marsdenia longiloba	Line 2 no fert	Nov-18	3	10	140	y	on Synoum glandulosum
NF40	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db - cage knocked over
NF41	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF42	Marsdenia longiloba	Line 2 no fert	Nov-18	1				
NF43	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF44	Marsdenia longiloba	Line 2 no fert	Nov-18	2	2	6	n	
NF44a	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF44b	Marsdenia longiloba	Line 2 no fert	Nov-18	3	10	75	y	
F45	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F46	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F47	Marsdenia longiloba	Line 3 fert	Nov-18	3	6	20	y	resprout
F48	Marsdenia longiloba	Line 3 fert	Nov-18	4	23	100	y	
F49	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F50	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F51	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F52	Marsdenia longiloba	Line 3 fert	Nov-18	3	4	50	y	
F53	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F54	Marsdenia longiloba	Line 3 fert	Nov-18	4	22	80	y	phone pics
F55	Marsdenia longiloba	Line 3 fert	Nov-18	3	13	70	y	on Alpinia arundelliana. Good condition
F56	Marsdenia longiloba	Line 3 fert	Nov-18	5	40	190	y	on Piliodiostigma - heavy flowering - pics
F57	Marsdenia longiloba	Line 3 fert	Nov-18	3	9	90	y	
F58	Marsdenia longiloba	Line 3 fert	Nov-18	3	4	60	y	Resprouted. Under tree fall debris
F59	Marsdenia longiloba	Line 3 fert	Nov-18	3	8	70	y	

No	Species	Line	Date	Cond	No. leaves	Height (cm)	New Shoots (Y/N)	Comment
	longiloba		18					
F60	Marsdenia longiloba	Line 3 fert	Nov-18	3	9	40	y	fair cond
F61	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F62	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F63	Marsdenia longiloba	Line 3 fert	Nov-18	3	4	25	y	
F64	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F65	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F66	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
NF67	Marsdenia longiloba	Line 4 no fert	Nov-18	3	1	80	y	only 1 leaf but long new shoots
NF68	Marsdenia longiloba	Line 4 no fert	Nov-18	3	7	75	y	
NF69	Marsdenia longiloba	Line 4 no fert	Nov-18	3	9	90	y	
NF70	Marsdenia longiloba	Line 4 no fert	Nov-18	4	20	170	y	on small dead shrub and Trochocarpa laurina
NF71	Marsdenia longiloba	Line 4 no fert	Nov-18	3	8	15	y	resprout
NF72	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF73	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF74	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF75	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF76	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF77	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF78	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db - no wild plants seen this year.
NF79	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF80	Marsdenia longiloba	Line 4 no fert	Nov-18	3	4	120	y	on Turpentine sapling
NF81	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF82	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF83	Marsdenia longiloba	Line 4 no fert	Nov-18	3	6	90	y	
NF84	Marsdenia longiloba	Line 4 no fert	Nov-18	2	2	60	n	
NF85	Marsdenia longiloba	Line 4 no fert	Nov-18	3	10	100	y	
NF86	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF87	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF88	Marsdenia longiloba	Line 4 no fert	Nov-18	0				gone

Slender Marsdenia - Sector J

Monit. No.	Species	Line	Fertility	Date	Cond	No. Lvs	Ht (cm)	New Shoots (Y/N)	Comment
Line 1 1	Marsdenia longiloba	L1	no fert	31-Oct-18	3	6	10	y	
	Marsdenia longiloba	L1	no fert	31-Oct-18	3	7	90	y	
3	Marsdenia longiloba	L1	no fert	31-Oct-18	3	6	90	y	
4	Marsdenia longiloba	L1	no fert	31-Oct-18	3	7	10	y	
	Marsdenia longiloba	L1	no fert	31-Oct-18	4	38	15	y	phone pics
6	Marsdenia longiloba	L1	no fert	31-Oct-18	3	9	80	y	
7	Marsdenia longiloba	L1	no fert	31-Oct-18	3	6	75	y	
	Marsdenia longiloba	L1	no fert	31-Oct-18	2	1	90	y	only just shooting
9	Marsdenia longiloba	L1	no fert	31-Oct-18	3	6	10	y	on Morinda
10	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
	Marsdenia longiloba	L1	no fert	31-Oct-18	3	8	10	y	
12	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
13	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
	Marsdenia longiloba	L1	no fert	31-Oct-18	2	2	70	y	new lvs but not good cond
15	Marsdenia longiloba	L1	no fert	31-Oct-18	2	5	5	y	just resprouting
16	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
	Marsdenia longiloba	L1	no fert	31-Oct-18	2	4	5	y	just resprouting
18	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
19	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
21	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db - under tree fall debris
22	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
24	Marsdenia longiloba	L1	no fert	31-Oct-18	2	3	80	y	just resprouting but poor cond
25	Marsdenia longiloba	L1	no fert	31-Oct-18	3	8	50	y	
	Marsdenia longiloba	L2	no fert	31-Oct-18	3	5	70	y	
Line 2 1	Marsdenia longiloba	L2	no fert	31-Oct-18	1		0		db
	Marsdenia longiloba	L2	no fert	31-Oct-18	1		0		db
3	Marsdenia longiloba	L2	no fert	31-Oct-18	1		0		db
	Marsdenia longiloba	L2	no fert	31-Oct-18	1		0		db
5	Marsdenia longiloba	L2	no fert	31-Oct-18	3	2	10	y	
	Marsdenia longiloba	L2	no fert	31-Oct-18	3	10	19	y	on small Turpentine above cage

7	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
8	Marsdenia longiloba	L2	fert	31-Oct-18	3	6	5	y	resprout
9	Marsdenia longiloba	L2	fert	31-Oct-18	3	5	0	y	10 good health despite sapling fallen on cage
10	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
11	Marsdenia longiloba	L2	fert	31-Oct-18	2	2	40	n	
12	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
13	Marsdenia longiloba	L2	fert	31-Oct-18	2	4	5	n	reshooting at ground level
14	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
15	Marsdenia longiloba	L2	fert	31-Oct-18	3	6	25	y	
16	Marsdenia longiloba	L2	fert	31-Oct-18	3	5	80	y	
17	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
18	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
19	Marsdenia longiloba	L2	fert	31-Oct-18	2	6	5	y	resprout
20	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
21	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
22	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
23	Marsdenia longiloba	L2	fert	31-Oct-18	2	5	5	n	resprout
24	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
25	Marsdenia longiloba	L2	fert	31-Oct-18	1	0			db
Line 3									
1	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
2	Marsdenia longiloba	L3	no fert	31-Oct-18	3	5	10	y	resprout
3	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
4	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
5	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
6	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
7	Marsdenia longiloba	L3	no fert	31-Oct-18	3	8	0	y	12 climbing onto Morinda and Synoum
8	Marsdenia longiloba	L3	no fert	31-Oct-18	3	6	80	y	
9	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db - but wild Marsdenia longiloba also present
10	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
11	Marsdenia longiloba	L3	no fert	31-Oct-18	2	1	20	n	
12	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
13	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
14	Marsdenia longiloba	L3	no fert	31-Oct-18	3	4	70	y	just reshooting
15	Marsdenia longiloba	L3	no fert	31-Oct-18	3	5	10	y	resprout
16	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db

	longiloba		fert	Oct-18					
17	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
18	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
19	Marsdenia longiloba	L3	no fert	31-Oct-18	3	10	0	11	y
20	Marsdenia longiloba	L3	no fert	31-Oct-18	2	2	5		n resprout
21	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
22	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
23	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
24	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
25	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0			db
26	Marsdenia longiloba	L3	no fert	31-Oct-18	1	0		40	db
27	Marsdenia longiloba	L3	no fert	31-Oct-18	5	50	0		y Flowering - robust plant climbing Cordyline and Glochidion from cage - pics
Line 4	Marsdenia longiloba	L4	fert	31-Oct-18	2	1	50		n Green stem, 1 small leaf
1	Marsdenia longiloba	L4	fert	31-Oct-18	3	6	70		y
2	Marsdenia longiloba	L4	fert	31-Oct-18	3	4	70		y
3	Marsdenia longiloba	L4	fert	31-Oct-18	2	1	30		y resprout after recent heavy rains
4	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db - east side of creekline
5	Marsdenia longiloba	L4	fert	31-Oct-18	4	15	0	20	y Growing up Turpentine sapling beside cage
6	Marsdenia longiloba	L4	fert	31-Oct-18	3	4	20		y db
7	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
8	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
9	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
10	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
11	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
12	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
13	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
14	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
15	Marsdenia longiloba	L4	fert	31-Oct-18	3	9	0	10	y
16	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
17	Marsdenia longiloba	L4	fert	31-Oct-18	3	6	60		y
18	Marsdenia longiloba	L4	fert	31-Oct-18	3	4	50		y
19	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
20	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
21	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
22	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
23	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db

24	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
25	Marsdenia longiloba	L4	fert	31-Oct-18	1	0			db
26	Marsdenia longiloba	L4	fert	31-Oct-18	2	1	40	n	under fallen Forest Oak

Woolls's Tylophora - Sector B

No	Date	Line	Tentative Species ID	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
64	Oct-18	L8 east, gate	Tylophora woollsii	ML46-6	1		0		db
65	Oct-18	L8	Tylophora woollsii	ML46-	1		0		db
66	Oct-18	L8	Tylophora woollsii	ML48-5	1		0		db
67	Oct-18	L8	Tylophora woollsii	ML46-1	1		0		db. P. dorrigoensis on cage
68	Oct-18	L8	Tylophora woollsii	ML46	1		0		db
69	Oct-18	L8	Tylophora woollsii	ML46-	1		0		db
70	Oct-18	L8	Tylophora woollsii	ML46-3	1		0		db
71	Oct-18	L8	Tylophora woollsii	ML46-2	1		0		db
72	Oct-18	L8	Tylophora woollsii	ML47-3	1		0		db
73	Oct-18	L8	Tylophora woollsii	ML47-10	1		0		db
74	Oct-18	L8	Tylophora woollsii	ML46-6	1		0		db
75	Oct-18	L8	Tylophora woollsii	ML47-4	1		0		db
76	Oct-18	L8	Tylophora woollsii	ML48	1		0		db
77	Oct-18	L8	Tylophora woollsii	ML48-2	1		0		db
78	Oct-18	L8	Tylophora woollsii	ML47-5	1		0		db
79	Oct-18	L8	Tylophora woollsii	ML46-4	1		0		db
80	Oct-18	L8	Tylophora woollsii	ML47-6	1		0		db
81	Oct-18	L8	Tylophora woollsii	new near TA	1		0		db
82	Oct-18	L8	Tylophora woollsii	new near TA	1		0		db
83	Oct-18	L8	Tylophora woollsii	ML45-3	2	4	7	y	resprout - T. paniculata?
84	Oct-18	L8	Tylophora woollsii	ML45-2	1		0		db
85	Oct-18	L9	Tylophora woollsii	ML45-6	1		0		db
86	Oct-18	L9	Tylophora woollsii	ML45-10	1		0		db
87	Oct-18	L9	Tylophora woollsii	ML45-4	2	4	30	y	resprout
88	Oct-18	L9	Tylophora woollsii	ML48-4	1		0		db
89	Oct-18	L9	Tylophora woollsii	ML47-8	1		0		db
90	Oct-18	L9	Tylophora woollsii	ML46-7	1		0		db
91	Oct-18	L9	Tylophora woollsii	ML47-7	1		0		db
92	Oct-18	L9	Tylophora woollsii	ML48-1	1		0		db
93	Oct-18	L9	Tylophora woollsii	ML48-5	1		0		db
94	Oct-18	L9	Tylophora woollsii	ML48-7	1		0		db
95	Oct-18	L9	Tylophora woollsii	ML48-4	1		0		db
96	Oct-18	L9	Tylophora woollsii	ML	2	4	10	y	resprout - T. paniculata?
97	Oct-18	L9	Tylophora woollsii	ML47-9	2	4	40	y	resprout - T. paniculata?
98	Oct-18	L9	Tylophora woollsii	ML48-7	1		0		db
99	Oct-18	L9	Tylophora woollsii	ML48	1		0		db
100	Oct-18	L9	Tylophora woollsii	ML47-10	1		0		db
101	Oct-18	L9	Tylophora woollsii	ML45-5	1		0		db
102	Oct-18	L9	Tylophora woollsii	ML45-8	1		0		db
103	Oct-18	L9	Tylophora woollsii	ML48-9	1		0		db
104	Oct-18	L9	Tylophora woollsii	ML48-1	1		0		db
105	Oct-18	L9	Tylophora woollsii	ML48-8	1		0		db

Rusty Plum & Red Bopple Nut

Monitoring Number	Condition notes	Condi on Score	Height (m)	Comments
Rusty Plum 1	split one from Boggy Creek shooting	4	0.5	One healthy shoot from base of main stem
Rusty Plum 2	split one from Boggy Creek shooting	0	0	dead
Rusty Plum 3	good - lot of new shoots	4	3.5	In excellent health
Red Bopple Nut		5	3.1	Excellent - new growth, basal suckers, flowering

Spider Orchid – TA2

No	Date	Source Label	Species	Con d 2018	Pseudobu lbs with leaves	Longest pseudob ulb	New grow th activ e	Notes
2	01-Nov-18	so-87	Dendrobium melaleucaphilum	4	7	15	y	wired to fallen Swamp Oak limb
3	01-Nov-18	so-74	Dendrobium melaleucaphilum	4	4	5	y	
4	01-Nov-18	so-26b	Dendrobium melaleucaphilum	4	5	16	y	re-found
5	01-Nov-18	so-48	Dendrobium melaleucaphilum	4	4	15	y	re-found near 7
6	01-Nov-18	so-52	Dendrobium melaleucaphilum	4	3	7	y	adjacent to 7
7a (bottom)	01-Nov-18	so-36	Dendrobium melaleucaphilum	4	4	4	y	
7b (top)	01-Nov-18	so-36	Dendrobium melaleucaphilum	4	7	40	y	
8a (left)	01-Nov-18	so-62	Dendrobium melaleucaphilum	4	4	22	y	
8b (right)	01-Nov-18	so-62	Dendrobium melaleucaphilum	4	6	37	y	
9	01-Nov-18	so-25	Dendrobium melaleucaphilum	0	0	0	dead	dead
10	01-Nov-18	so-24	Dendrobium melaleucaphilum	4	3	1	y	
11a	01-Nov-18	so-29	Dendrobium melaleucaphilum	4	2	10	y	
11b	01-Nov-18	so-29	Dendrobium melaleucaphilum	2	2	2.5	n	
11c	01-Nov-18	so-29	Dendrobium melaleucaphilum	0	0	0	dead	dead
12	01-Nov-18	so-65	Dendrobium melaleucaphilum	4	7	22	y	Well away from other plants in SE corner
13	01-Nov-18	so-64	Dendrobium melaleucaphilum	4	4	14	y	
14	01-Nov-18	so-28	Dendrobium melaleucaphilum	4	5	10	y	
15	01-Nov-18	so-24	Dendrobium melaleucaphilum	4	5	8	y	
16	01-Nov-18	so-53	Dendrobium melaleucaphilum	3	1	12	n	
17	01-Nov-18	so-26b	Dendrobium melaleucaphilum	0	0	0	gone	gone
18	01-Nov-18	so-23	Dendrobium melaleucaphilum	0	0	0	gone	gone
19	01-Nov-18	so-88	Dendrobium melaleucaphilum	4	8	39	y	

No	Date	Source Label	Species	Con d 201 8	Pseudobu lbs with leaves	Longest pseudob ulb	New grow th activ e	Notes
20	01-Nov-18	so-86	Dendrobium melaleucaphilum	3	2	15	n	
21	01-Nov-18	so-86-1	Dendrobium melaleucaphilum	3	3	20	n	adjacent to 22
22	01-Nov-18	so-35	Dendrobium melaleucaphilum	4	8	21	y	v healthy - pic
23a (bottom)	01-Nov-18	so-86-	Dendrobium melaleucaphilum	4	1	1	y	tiny plant
23b (top)	01-Nov-18	so-86-	Dendrobium melaleucaphilum	4	2	1	y	tiny plant
24	01-Nov-18	so-86-3	Dendrobium melaleucaphilum	4	3	1	y	
25	01-Nov-18	so-86-4	Dendrobium melaleucaphilum	0	0	0	gone	gone
26	01-Nov-18	so-43	Dendrobium melaleucaphilum	0	0	0	gone	gone
27	01-Nov-18	so-67	Dendrobium melaleucaphilum	0	0	0	gone	gone
28	01-Nov-18	so-68	Dendrobium melaleucaphilum	3	3	38	n	
29a (bottom)	01-Nov-18	so-2	Dendrobium melaleucaphilum	0	0	0		not found
29b	01-Nov-18	so-2	Dendrobium melaleucaphilum	0	0	0		not found
29c (top)	01-Nov-18	so-2	Dendrobium melaleucaphilum	0	0	0		not found
30	01-Nov-18	so-57	Dendrobium melaleucaphilum	3	3	1	n	
31	01-Nov-18	so-30	Dendrobium melaleucaphilum	4	2	3.5	y	
32	01-Nov-18	so-82	Dendrobium melaleucaphilum	2	0	1.5	n	
33	01-Nov-18	so-66	Dendrobium melaleucaphilum	4	6	4	y	
34	01-Nov-18	so-38	Dendrobium melaleucaphilum	3	2	5	n	
35	01-Nov-18	so-86-13	Dendrobium melaleucaphilum	0	0	0	gone	gone
36	01-Nov-18	so-82	Dendrobium melaleucaphilum	3	2	3	n	
37	01-Nov-18	so-86-5	Dendrobium melaleucaphilum	0	0	0		dead
38	01-Nov-18	Dm34a	Dendrobium melaleucaphilum	4	2	5	y	
39	01-Nov-18	so-86-12	Dendrobium melaleucaphilum	3	2	23	n	
40	01-Nov-18	so-86-6	Dendrobium melaleucaphilum	4	2	1	y	
41	01-Nov-18	so-86-7	Dendrobium melaleucaphilum	2	1	1	n	
42	01-Nov-18	no label	Dendrobium melaleucaphilum	0	0	0	gone	gone
43	01-Nov-18	so-86-14	Dendrobium melaleucaphilum	4	3	1	y	on cheese tree
45	01-Nov-18	so-86-11	Dendrobium melaleucaphilum	0	0	0	dead	dead
46a (bottom)	01-Nov-18	so-64	Dendrobium melaleucaphilum	0	0	0		dead
46b	01-Nov-18	so-64	Dendrobium melaleucaphilum	3	3	1.5	n	
46c	01-Nov-18	so-64	Dendrobium melaleucaphilum	4	5	3	y	
46d	01-Nov-18	so-64	Dendrobium melaleucaphilum	4	4	1.5	y	at pink flagging

No	Date	Source Label	Species	Cond 2018	Pseudobulbs with leaves	Longest pseudobulb	New growth active	Notes
46e	01-Nov-18	so-64	Dendrobium melaleucaphilum	3	2	1	n	
46f	01-Nov-18	so-64	Dendrobium melaleucaphilum	2	2	1	n	
46g (top)	01-Nov-18	so-64	Dendrobium melaleucaphilum	2	1	1	n	
no yellow tag	01-Nov-18	so-58	Dendrobium melaleucaphilum	4	7	2.5	y	upper plant only
47	01-Nov-18	so-86-9	Dendrobium melaleucaphilum	0	0	0		not found
48	01-Nov-18	so-86-10	Dendrobium melaleucaphilum	0	0	0		not found

provides full details of the results of the NH2U Year 2 2018 monitoring of all *in situ* flora. A summary of these results is provided below.

Spider Orchid

The rate of survival of Spider Orchid decreased slightly to 83% compared to the previous survey in October 2017. Several plants could not be found, and some individual orchids had died, bringing the total number of losses or mortalities over five years to 13 plants from the original 76. Some orchid plants bore old inflorescence axes, indicating that they had flowered earlier in the spring of 2018. No seed pods were recorded during the current survey.

Some of the attributes summarised in Table 6 below suggest a general decline in plant condition:

- Survival rate decreased slightly, and
- The number of plants showing new shoot growth decreased slightly.

However, other measured attributes (Table 6) indicate an improvement in plant condition:

- Mean length of the longest pseudobulb per plant increased.
- Mean number of pseudobulbs with leaves per plant increased slightly.
- More plants showed an increase in number of pseudobulbs with leaves compared to plants showing a decrease in number of pseudobulbs.

Considering the above factors, the overall trend in the *in-situ* Spider Orchid population indicates an improvement in plant condition, with a median condition class score of 3. This result is surprising, as the past two years have been characterised by long periods of below average rainfall, including a very severe winter-spring drought during which almost no rain was recorded between the end of June and the end of August 2017 and the same period in 2018.

Table 6: Summary of monitoring results for *in-situ* Spider Orchids.

Attribute	Dec 2014	Feb 2016	Feb 2017	Oct 2017	Oct 2018
Total number of living orchid plants (n)	76	75	72	67	63
% survival	100%	98.7%	96.1%	88%	83%
Median condition class of plants				3	3
Mean length of longest pseudobulb	5.27±0.86	6.46±0.85	5.92±0.34	4.2±4.1	5.07±5.9
Mean number of pseudobulbs with leaves per plant	2.46±0.43	2.92±0.19	2.46±0.19	3.4±1.8	3.5±2.34
% of plants with active	4.8%	15.2%	2.5%	60%	55%

new shoot growth				
Change in number of pseudobulbs with leaves per plant relative to the year before (<i>note –2017 & 2018 result includes plants not found</i>)	dead – 1%; decrease – 10%; increase – 59%; same – 29%	dead – 2.4%; decrease – 24.4%; increase – 24.4%; same – 48.7%	Dead / not found – 14%; decrease – 21%; increase – 41%; same – 24%	Dead / not found – 17%; decrease – 17%; increase – 26%; same – 11%

Slender Marsdenia

Of the five *in-situ* Slender Marsdenia plants being monitored, one had died back, and the remaining sites supported healthy plants, with a median condition class of 3, and one plant at site ML-2010-3 in bud (**Error! Reference source not found.**). Site UTW3, like last year, had three plants recorded close to the flagged survey point. Site UTW4, on the other hand, had only one plant recorded this year compared to three plants last year.



Figure 5: *In-situ* Slender Marsdenia at site ML-2010-3 in Oct 2018.

Gully Ironbark

The very large Gully Ironbark, *Eucalyptus ancophila*, which occurs on a drainage line in the NH2U road reserve directly opposite TA1, was observed to be in the same fair condition as the previous survey. As this specimen is a very old tree, the crown inevitably displays some signs of senescence (Figure 6).



Figure 6: The very large, old Gully Ironbark opposite TA1.

RESULTS - TRANSLOCATED FLORA MONITORING

APPENDIX 2: Monitoring Results – All Translocated Flora Oct – Nov 2018 provides full details of the results of the NH2U Year 2 2018 monitoring of all translocated flora. A summary of these results is provided below. The results of the current season’s monitoring of all translocated threatened plants, including all data collected in the field, is also provided as an Excel™ workbook which accompanies this report.

Slender Marsdenia

Slender Marsdenia was planted in three sectors in TA1:

- Sector A - Directly transplanted from construction footprint with no fertiliser.
- Sector F - Propagated vegetatively and introduced with and without fertiliser.
- Sector J - Propagated from seed and introduced with and without fertiliser.

Sector A

Survival rate for all plants in Sector A was 36.8% after five years, a small decrease on the previous year (40%) and probably attributable, again, to the extremely dry winter-spring conditions of 2018, like the previous year. Mean plant height increased slightly, from 36.3cm to 40.7cm. 65 plants had died back (61.3%), and two plants could not be found and have possibly been lost under tree-fall debris. These results are summarised in Table 7 below.

After five years the ‘thrival rate’ of Slender Marsdenia in Sector A was 28.3% (30 plants out of 106 with a Condition Class score of 3, 4 or 5), which represents an improvement over previous results. 16 of these plants were a metre or more in height. Three plants were in flower at the time of survey (title

page, right image), and one of the large plants bore a single fruit. The percentage of plants with active shoot growth in November 2018 was 30.2%.

Table 7: *Slender Marsdenia* in TA1 Sector A - mean height in centimetres and percent survival of transplants.

All plants n = 106	Mar 2014	Dec 2014	Jan 2016	Nov 2016	Oct 2017	Nov 2018
Survival %	90.5	87.6	71.2	67.9	40	36.8
Mean height (cm)	36.25	36.25	42.38	39.97	36.3	40.7

Sector F

The survival rate of all plants in Sector F was 42.2%, a significant decrease on the previous survey but not significantly higher than the current season's survival rate in Sector A. Mean plant height was 30.7cm, also a significant decrease on the previous survey (Table 8).

The thrival rate after five years was 36.7%, higher than the Sector A transplants and comparable to the Sector J seedlings (see below). Nine plants with a condition class score of 3 or more were more than one metre in height. No plants were in bud, or flowering, at the time of the current survey.

Table 8: *Slender Marsdenia* in TA1 Sector F - mean height in centimetres and percent survival of transplants.

All plants n = 90	Jul 2014	Jan 2016	Nov 2016	Oct 2017	Nov 2018
Survival %	83.63	77.1	66.75	61.1	42.2
Mean height (cm)	21.04	68.50	55.89	52.44	30.7

Sector J

Propagated seedlings of Slender Marsdenia were planted in Sector J in August 2014. Results from the current survey reveal a decrease in both survival rate (43.7%) and mean plant height (32.3cm) since the last monitoring survey (Table 9).

The current thrival rate of Slender Marsdenia in Sector J is 32%, which is the same as the previous year. 13 plants were one metre or more in height and one plant was in flower.

Table 9: Slender Marsdenia in TA1 Sector J - mean height in centimetres and percent survival of transplants.

All plants n = 103	Dec 2014	Jan 2016	Nov 2016	Oct 2017	Nov 2018
Survival %	92.2	86.4	82.5	54.39	43.7
Mean height (cm)	46.75	69.15	64.19	54.61	32.3

Woolfs's Tylophora

Woolfs's Tylophora *Tylophora woolfsii* was translocated to TA1 into Sector B as direct transplants from the construction footprint with no fertiliser.

Sector B

Mean survival rate for all plants in Sector B for the current survey was 9.5% (4 plants of 42), a significant decrease from the previous year and showing a continuing trend of decline in condition of plants in this sector. Mean plant height again decreased significantly to 2.07cm (Table 10).

As was the case last season, the strongest indicator of the poor state of plants in this sector is the thrival rate of 0%. No plants were assessed as being in condition class 3 or better, down from 3 plants recorded as such during the previous survey. As suggested by Ecos Environmental (2016a), the recipient site, being located on a hill crest and visibly drier and more exposed than other sectors, represents sub-optimal habitat for Woolfs's Tylophora and Slender Marsdenia.

It is notable that three of the four living plants observed during the current survey looked more like *Tylophora paniculata* than *T. woolfsii*.

Table 10: Woolfs's Tylophora in TA1 Sector B - mean height in centimetres and percent survival of transplants.

All plants n = 42	Mar 2014	Dec 2014	Jan 2016	Nov 2016	Oct 2017	Nov 2018
Survival %	90.5	80	73.8	31	14.29	9.5
Mean height (cm)	76.31	38.84	34.07	11.73	4.88	2.07

Rusty Plum

Translocated Rusty Plums

Two small Rusty Plum trees (4-8m high) were transplanted into Sector E in TA1. One tree had split and was separated into two pieces (plants 1 and 2) before planting. The other tree (plant 3) was pruned back to remove most of the branch system before being transplanted.

The current survey revealed a survival rate of 67%, with no losses since the previous survey. Plant 1 bore a healthy, basal stem shoot which had increased in size from the previous survey in October 2017 (Figure 7). Plant 2 is dead, and Plant 3 was in excellent health with a flush of new growth.



Figure 7: Rusty Plum transplanted tree No. 1 in good health with new growth.

Rusty Plum enhancement plantings

Ecos Environmental (2016a) noted that most of the 40 Rusty Plum seeds planted directly into 20 points within Sector E of TA1 had germinated, but no protective wire cages were installed, resulting in heavy losses to browsing by wallabies and possums. Ten of the direct seeded points (50%) had live Rusty Plum seedlings in January 2016. This number had decreased to six (30%) by Nov 2016, and only three in 2017. During the current survey, the same three points still supported Rusty Plum seedlings, a survival rate of 15%.

As described in the introductory section of this report, the direct seeding of Rusty Plum seed was repeated, including the installation of tree protectors, in October 2018. This is described in a separate report (Richards 2018).

Red Bopple Nut

A single Red Bopple Nut tree was transplanted to Sector H in TA1. The tree was recorded in excellent condition during the current survey. It bore extensive new shoots, several inflorescences (title page, left image), and two basal sucker shoots (Figure 8). No fruit-set was observed at the time of the survey.



Figure 8: Basal sucker shoots on Red Bopple Nut transplant

Spider Orchid

Of the 60 Spider Orchid transplants at TA2 recorded in 2016 (Ecos Environmental 2016a), 43 were recorded as alive during the current survey, a survival rate of 71.7%, which represents a decrease from the previous survey result of 78.3% survival (Table 11). This figure may underestimate actual survival, as five plants were not able to be re-located during the current survey (although two other plants, not recorded in 2017, were re-found).

Apart from the apparent decline in survival rate, other results showed an improvement in the population, including a small increase in the mean length of the longest pseudobulb; a small increase in mean number of pseudobulbs with leaves per plant, and a significant increase in the number of plants bearing new shoots. This improvement in overall plant condition is reflected in an increase in median condition class of the translocated Spider Orchids to 3. Several old inflorescence axes were observed during the current survey, but no evidence of fruit production was recorded.

Table 11: Summary of monitoring results for Spider Orchid transplants at TA2.

Attribute	Mar 2014	Dec 2014	Jan 2016	Nov 2016	Oct 2017	Nov 2017
Survival (%; n=60)	96.4	92.7	94.6	94.6	78.3	71.7
Mean length of the longest pseudobulb (cm)	8.22	8.22	8.56	8.56	6.55	7.3
Mean number of pseudobulbs with leaves	1.95	1.73	2.40	2.40	2.43	2.5
Number of plants with new shoots (pseudobulbs)	1	6	10	10	15	28

DISCUSSION

In accordance with the MCoA of the NH2U TFMP (Ecos Environmental 2013), each annual monitoring report must include an assessment of the success or failure of protective measures for *in-situ* threatened flora, and an assessment of the success or failure of the threatened flora translocation program (salvage translocation and population enhancement measures). These assessments are provided below. The MCoA also requires a recommended work plan for the next 12 months. This, too, is provided below.

Evaluation of *in-situ* Flora Management

The following performance indicators are used to evaluate the success of protective measures for *in-situ* threatened flora:

- The survival rate of *in-situ* threatened flora at the finish of clearing is 100%. No accidental damage occurs during clearing;
- The survival rate of *in-situ* threatened flora at the end of years 1-3 of the monitoring program is at least 80% and at least 70% at the end of years 4-8;
- Of plants surviving at the end of each year, at least 75% are in good condition – i.e. they have healthy foliage, no sign of die-back or disease and exhibit new shoot growth (Condition Class 3 or better).

Table 12 below summarises how the above performance indicators have been met to date.

Table 12: Evaluation of performance indicators for *in-situ* flora.

Species	100% survival rate at the finish of clearing. No accidental damage during clearing	80% survival rate at the end of years 1-3 and at least 70% at the end of years 4-8	At least 75% of surviving plants are in good condition at each year end (Condition Class 3 or higher)	Performance indicators met?
Spider Orchid	Y	Y	N (55%)	2 of 3
Slender Marsdenia	Y	Y	Y (80%)	3 of 3
Gully Ironbark	Y	Y	Y	3 of 3

Spider Orchid

The current level of survival of *in-situ* Spider Orchids is the only performance indicator that has not been met to date. As noted in the Year 1 report, this may be because not all surviving plants were re-located during the current survey. Furthermore, the past two years of the winter-spring period have been extremely dry, which may contribute to a general reduction in plant condition and survival.

Slender Marsdenia

Slender Marsdenia currently meets all performance indicators for *in situ* flora.

Evaluation of Flora Translocation Program

The following performance indicators are used to evaluate the success of the threatened species translocations (salvage translocation and population enhancement):

- All directly impacted individuals of threatened species were salvaged and relocated to the receival sites.
- At least 60% of transplant and enhancement individuals are surviving after the first year, 50% after five years and 40% after eight years.

- c) At the end of the monitoring program (8 years), at least 50% of surviving individuals have a Condition Class of 3 or higher.

Table 13 below summarises how the above performance indicators have been met to date.

Table 13: Evaluation of performance indicators for translocated flora.

Species	All directly impacted individuals of threatened species were salvaged and relocated to the receival site(s).	At least 60% of transplant and enhancement individuals are surviving after the first year, 50% after five years and 40% after eight years	At the end of the monitoring program (8 years), at least 50% of surviving individuals have a Condition Class of 3 or higher.	Performance indicators met?
Slender Marsdenia	Y	Y, N, n/a	n/a	2 of 3 to date
Woolfs's Tylophora	Y	Y, N, n/a	n/a	2 of 3 to date
Rusty Plum	Y	Y, N, n/a	n/a	2 of 3 to date
Red Bopple Nut	Y	Y, Y, n/a	n/a	2 of 3 to date
Spider Orchid	Y	Y, Y, n/a	n/a	2 of 3 to date

It is clear from Table 13 above that the performance indicators are designed to provide an assessment of translocation success mainly for the latter half of the program (years 5 to 8). Because of this, little can be gleaned from this current assessment, apart from some specific comments below.

Slender Marsdenia

The current (Year 5) mean survival rate of all Slender Marsdenia plants stands at 40.9%. Based on the author's knowledge of other translocations of this species, this is a comparatively good result. It should also be noted that it is highly likely that a significant proportion of those Slender Marsdenia plants recorded as having died back are still alive and may resprout in future years. However, successful achievement of the performance indicators for this species is as dependant on climatic factors as much as anything else. Should the region continue to experience severe winter-spring droughts like the past two years, then the survival rate of Slender Marsdenia transplants would be expected to decline as more plants die back in response to dry conditions. On the other hand, should milder conditions prevail then significantly more plants might be expected to produce aerial shoots and be in better overall condition.

Woolfs's Tylophora

The current (Year 5) mean survival rate of Woolfs's Tylophora (plants only within Sector B) stands at 9.5%, with a correspondingly low median condition class score of 1. If this low survival and condition persists, then the translocation of this species will have failed all survival and condition class performance indicators.

Rusty Plum

Because all Rusty Plum transplants and half the Rusty Plum enhancement plantings survived through Year 1, at present Rusty Plum meets relevant performance criteria. As at Year 5, Rusty Plum transplant survival is 67%, which, if maintained, will meet ongoing performance criteria. The enhancement planting survival rate will be assessed from next year, since the enhancement planting was repeated this year.

Spider Orchid

The current (Year 5) survival rate of 71.7% may be an underestimate of the actual rate of survival of Spider Orchid plants at TA2, as explained above. Overall, the translocation of Spider Orchid plants has been successful, and it is expected that performance indicators will be met in the future for this species.

RECOMMENDED 12 MONTH WORK PLAN.

The following actions are recommended here with the aim of achieving the principle objectives and performance indicators of the TFMP for *in-situ* and translocated flora.

1. Monitor Rusty Plum enhancement plantings six months after planting (ie April 2019) to assess condition of protective cages, incursion of weeds or competing native species, whether any seeds have germinated, and to undertake any necessary maintenance of the enhancement plantings.
2. Engage a qualified bush regenerator to assess the current level of infestation of Broad-leaved Paspalum and Lantana in TA1, and, if necessary, provide an appropriate control program. Observations by the author during monitoring surveys suggests that both weed species have increased in density in parts of TA1, particularly in the vicinity of old vehicular tracks. Early action to control both species would be beneficial.

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APPENDIX 1: Monitoring Results – all *in situ* flora Oct – Nov 2018

Spider Orchid

Note: where more than one plant occurs, the lowest plant is recorded first and the highest plant last. If score is the same for all plants, then only one score is recorded. Some scores are given only for the largest of multiple plants.

Monitoring No	Date	Number of plants	Condition Class	Number of pseudobulbs	Number of pseudobulbs with leaves	Number of pseudobulbs with leaves Oct2017	Change in No of pseudobulbs Oct 2017 to Oct 2018	Length of the longest pseudobulb overall (cm)	Length of the longest pseudobulb more than one plant (cm)	New growth	Comment
so-59	26-Oct-18	1	1	3	1	1	Same	1		n	On Grey Gum sapling. Will vanish when bark shed.
so-61	26-Oct-18	2	3	9	1	1	Same	2.5		y	
	26-Oct-18		3	5	3	1	Increase	1.5		y	
A	26-Oct-18	2	3	7	5		n/a	2		y	re-found nr so-39
			2	6	4		n/a	1		y	re-found nr so-39
so-39	26-Oct-18	2	3	10	3	0	Increase	9		y	Both plants OK in 2018.
	26-Oct-18		3	5	2	0	Increase	5		y	Both plants OK in 2018.
so-41	26-Oct-18	4	3	9	5	4	Increase	25		y	Top of host stem with 2 plants on it has broken off. 2 lower plants with old inflorescences
	26-Oct-18		3	14	4	4	Same	20		y	
	26-Oct-18		3	7	4	2	Increase	3		y	
	26-Oct-18		3	11	8	6	Increase	5		y	
so-40	26-Oct-18	2	3	19	9	11	Decrease	15		y	3 plants present, lowest 2 monitored
	26-Oct-18		3	11	8	7	Increase	5		y	
so-69	26-Oct-18	3	3	9	5	4	Increase	7		y	
	26-Oct-18		3	10	4	3	Increase	7		y	
	26-Oct-18		3	8	6	5	Increase	3.5		y	
so-70	26-Oct-18	1	0			1	n/a				not found
B	26-Oct-18	2	3	12	5	4	Increase	4		y	
	26-Oct-18		3	8	4	3	Increase	3		y	
C	26-Oct-18	1	0			3	n/a				not found
D	26-Oct-18	0	0								dead
so-71	26-Oct-18	3	1	3	2		n/a	1		n	
	26-Oct-18		3	5	3	2	Increase	1		y	
	26-Oct-18		2	5	2	2	Same	1		n	
	26-Oct-18		0			2	n/a				gone
so-72	26-Oct-18	6	2	5	1	4	Decrease	1		n	
	26-Oct-18		2	5	1		n/a	5		n	
	26-Oct-18		2	4	2		n/a	4		n	
	26-Oct-18		3	5	4		n/a	1		y	

Monitoring No	Date	Number of plants	Condition Class	Number of pseudobulbs	Number of pseudobulbs with leaves	Number of pseudobulbs with leaves Oct2017	Change in No of pseudobulbs Oct 2017 to Oct 2018	Length of the longest pseudobulb overall (cm)	Length of the longest pseudobulb more than one plant (cm)	New growth	Comment
	26-Oct-18		3	9	4		n/a	1		y	
	26-Oct-18		2	4	3		n/a	1		n	
F	26-Oct-18	3	3	5	4	3	Increase	24	24	y	
	26-Oct-18		3	6	4	3	Increase			y	
	26-Oct-18		3	13	4	4	Same			y	
G	26-Oct-18	1	3	5	1	2	Decrease	1.5		n	
H	26-Oct-18	2	3	7	2	1	Increase	2		y	
	26-Oct-18		0			2	n/a				gone
M	26-Oct-18	0	0				n/a				not found
N	26-Oct-18	1	3	8	5	4	Increase	12		y	host tree has snapped below orchid
so-27	26-Oct-18	3	2	5	1	3	Decrease	1		n	
	26-Oct-18		2	10	0	6	Decrease	2		n	
	26-Oct-18		2	12	2	2	Same	2		n	
so-26	26-Oct-18	1	2	6	3	5	Decrease	2.5		n	3 plants on tree - lowest monitored
so-22	26-Oct-18	1	3	18	12	8	Increase	9		y	many tiny Pbs at base with leaves - some new ones too
O	26-Oct-18	2	3	6	5	5	Same	2		y	1 plant either side of flagging. 1 more plant further up.
	26-Oct-18		3	8	7	6	Increase	20		y	
P	26-Oct-18	1	3	7	4	4	Same	3		y	1 other plant high up on tree
Q	26-Oct-18	1	3	10	6	6	Same	2.5		y	
so-21	26-Oct-18	1	3	10	1	1	Same	23		y	May have flowered this season
R	26-Oct-18	2	0			5	n/a				not found
	26-Oct-18		0			3	n/a				not found
so-19	26-Oct-18	1	3	5	4		n/a	3.5		y	not found
so-17	26-Oct-18	0	0				n/a				gone
so-16	26-Oct-18	1	2	5	1	2	Decrease	4		n	On broken stem
so-15	26-Oct-18	3	2	12	2	1	Increase	1.5		n	
	26-Oct-18		3	9	4	3	Increase	3		y	
	26-Oct-18		3	10	8	5	Increase	2		y	
S	26-Oct-18	0	0			3	n/a				not found
	26-Oct-18	0	0			3	n/a				not found
	26-Oct-18	0	0			4	n/a				not found
so-14	26-Oct-18	1	2	13	1	3	Decrease	7		n	One plant gone. Top of host stem snapped off.
so-12	26-Oct-18	2	2	7	1	4	Decrease	2		n	Poor cond on dead host
	26-Oct-18		0			0	n/a				gone
so-10	26-Oct-18	1	0			5	n/a				not found

Monitoring No	Date	Number of plants	Condition Class	Number of pseudobulbs	Number of pseudobulbs with leaves	Number of pseudobulbs with leaves Oct2017	Change in No of pseudobulbs Oct 2017 to Oct 2018	Length of the longest pseudobulb overall (cm)	Length of the longest pseudobulb more than one plant (cm)	New growth	Comment
so-11	26-Oct-18	2	2	8	1	4	Decrease	2.5		n	
	26-Oct-18		2	7	1	5	Decrease	2.5		n	
so-6	26-Oct-18	2	3	4	4	3	Increase	3		y	
	26-Oct-18		3	9	3	3	Same	10		y	
so-5	26-Oct-18	1	2	12	2	3	Decrease	3.5		n	
so-4	26-Oct-18	1	3	7	4	3	Increase	3.5		y	
so-7	26-Oct-18	2	3	6	2	3	Decrease	3		y	
	26-Oct-18		3	14	7	3	Increase	3.5		y	
so-8	26-Oct-18	3	3	8	1	2	Decrease	3		y	
	26-Oct-18		3	9	5	4	Increase	6		y	
	26-Oct-18		3	5	2	3	Decrease	2		y	
so-9	26-Oct-18	2	2	5	2	3	Decrease	1		n	tiny plants on fallen tree, leaning on Sally Wattle
	26-Oct-18		2	4	1	2	Decrease	1		n	

Slender Marsdenia and Gully Ironbark

Site No	Species	Chainage	Date	Condition 2018	Ht (m)	No. lvs	New shoots	Comment 2018
ML 119	<i>Marsdenia longiloba</i>	62100	31-Oct-18	1				Died back. Healthy vine observed c. 30m upstream.
ML 2010-1	<i>Marsdenia longiloba</i>	75000	31-Oct-18	3	0.5	10	y	On <i>Notelaea longifolia</i> . Re-flagged
ML 2010-3	<i>Marsdenia longiloba</i>	75000	31-Oct-18	5	2.1	15	y	In bud. Pics on camera.
UTW3	<i>Marsdenia longiloba</i>	78450	31-Oct-18	2	0.2	4	n	1 'seedling' also present. Downhill plant.
UTW3	<i>Marsdenia longiloba</i>	78450	31-Oct-18	3	0.1	4	y	Uphill plant.
UTW4	<i>Marsdenia longiloba</i>	78450	31-Oct-18	3	0.5	26	y	On broken bloodwood sapling. Only 1 plant seen.
EA	<i>Eucalyptus ancophila</i>	78850	31-Oct-18	3				Same as last year.

APPENDIX 2: Monitoring Results – All Translocated Flora Oct – Nov 2018

Slender Marsdenia - Sector A

No	Date	Species	Line	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
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No	Date	Species	Line	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
1	Nov-18	Marsdenia longiloba	L7 east	ML14	1				db. Parsonsia dorriogensis on cage
2	Nov-18	Marsdenia longiloba	L7	ML2010-2	1				db
3	Nov-18	Marsdenia longiloba	L7	MLN-5	1				db
4	Nov-18	Marsdenia longiloba	L7	ML14A	1				db
5	Nov-18	Marsdenia longiloba	L7	ML14A	1				db. P. dorriogensis in cage
6	Nov-18	Marsdenia longiloba	L7	ML14A	3	7	30	y	Tylophora paniculata?
7	Nov-18	Marsdenia longiloba	L7	ML13	1				db
8	Nov-18	Marsdenia longiloba	L7	ML14A	1				db
9	Nov-18	Marsdenia longiloba	L7	ML11	1				db
10	Nov-18	Marsdenia longiloba	L7	UTW-2	5	40	400	y	In fruit - one slender pod 8cm x 1cm, up high on vine
11	Nov-18	Marsdenia longiloba	L7	UTW-2	4	20	120	y	phone pics
12	Nov-18	Marsdenia longiloba	L7	TWN-1	1				db
13	Nov-18	Marsdenia longiloba	L7	UTW-2	2	6	6	y	resprout
14	Nov-18	Marsdenia longiloba	L7	ML20	3	6	90	y	
15	Nov-18	Marsdenia longiloba	L7	ML21	1				db
16	Nov-18	Marsdenia longiloba	L7	TWN-1	0				gone
17	Nov-18	Marsdenia longiloba	L7	UTW-2	1				db
18	Nov-18	Marsdenia longiloba	L7	UTW-2	1				db
19	Nov-18	Marsdenia longiloba	L7	UTW-1	1				db
20	Nov-18	Marsdenia longiloba	L7 west	UTW-4	1				db
21	Nov-18	Marsdenia longiloba	L6 west	TWN-1	2	2	40	y	
22	Nov-18	Marsdenia longiloba	L6	TWN-1	1				db
23	Nov-18	Marsdenia longiloba	L6	TWN-1	1				db
24	Nov-18	Marsdenia longiloba	L6	TWN-1	1				db
25	Nov-18	Marsdenia longiloba	L6	UML-6	1				db
26	Nov-18	Marsdenia longiloba	L6	UML-6	2	9	90	n	
27	Nov-18	Marsdenia longiloba	L6	MLN-6	3	4	50	y	
28	Nov-18	Marsdenia longiloba	L6	UML-5	2	2	80	n	
28b/41	Nov-18	Marsdenia longiloba	L6	UML-5	1				db
29	Nov-18	Marsdenia longiloba	L6	ML17	5	40	500	y	In flower on Cryptocarya rigida
30	Nov-18	Marsdenia longiloba	L6	new near ML18	3	12	200	y	on Cryptocarya rigida
30b/42	Nov-18	Marsdenia longiloba	L6	UML-5	5	30	220	y	In flower, on Cordyline stricta - photos
31	Nov-18	Marsdenia longiloba	L6	new near ML18	1				db
32	Nov-18	Marsdenia longiloba	L6	MLN-6	3	7	110	y	
33	Nov-18	Marsdenia longiloba	L6	ML18	1				db

No	Date	Species	Line	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
33b/40	Nov-18	Marsdenia longiloba	L6	ML21	0				gone
34	Nov-18	Marsdenia longiloba	L6	ML18	3	6	10	y	resprout
35	Nov-18	Marsdenia longiloba	L6	MLN6	4	16	240	y	Climbing Cryptocarya rigida
36	Nov-18	Marsdenia longiloba	L6	ML19	3	12	100	y	
37	Nov-18	Marsdenia longiloba	L6	ML19	4	40	190	y	Climbing dead sapling
38	Nov-18	Marsdenia longiloba	L6	ML20	1				db
39	Nov-18	Marsdenia longiloba	L6 east	ML21	4	30	180	y	Climbing Ripogonum fawcettianum & Smilax glyciphylla
43	Nov-18	Marsdenia longiloba	L5	ML18	1				db
44	Nov-18	Marsdenia longiloba	L5	ML30	3	5	20	y	large-leaved form
45	Nov-18	Marsdenia longiloba	L5	TW29	3	6	10	y	resprout
46	Nov-18	Marsdenia longiloba	L5	ML32	1				db
47	Nov-18	Marsdenia longiloba	L5	new adj. ML33	3	4	5	y	resprout
48	Nov-18	Marsdenia longiloba	L5	new adj. ML33	2	5	90	n	poor condition
49	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
50	Nov-18	Marsdenia longiloba	L5	MLN-2	5	40	270	y	In flower on Cryptocarya rigida
51	Nov-18	Marsdenia longiloba	L5	ML15	3	5	50	y	
52	Nov-18	Marsdenia longiloba	L5	ML15	1				db
53	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
54	Nov-18	Marsdenia longiloba	L5	new adj. ML33	2	2	100	n	poor condition
55	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
56	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
57	Nov-18	Marsdenia longiloba	L5	new adj. ML33	1				db
58	Nov-18	Marsdenia longiloba	L5	ML45-	1				db
59	Nov-18	Marsdenia longiloba	L5	ML45-11	3	6	80	y	T. paniculata
60	Nov-18	Marsdenia longiloba	L5	ML47-1	1				db
61	Nov-18	Marsdenia longiloba	L5	ML47-2	1				db
62	Nov-18	Marsdenia longiloba	L5	ML45-4	1				db
63	Nov-18	Marsdenia longiloba	L5 west	ML45-	1				db
106	Nov-18	Marsdenia longiloba	L4	ML2010-3	1				db
107	Nov-18	Marsdenia longiloba	L4	ML2010-3	3	7	60	y	
108	Nov-18	Marsdenia longiloba	L4	ML2010-3	3	8	12	y	resprout
109	Nov-18	Marsdenia longiloba	L4	MLN-4	1				db
110	Nov-18	Marsdenia longiloba	L4	ML126	4	18	130	y	
111	Nov-18	Marsdenia longiloba	L4	ML126	2	2	10	n	
112	Nov-18	Marsdenia longiloba	L4	ML127	3	5	110	y	

No	Date	Species	Line	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
113	Nov-18	Marsdenia longiloba	L4	ML2010-3	1				db
114	Nov-18	Marsdenia longiloba	L4	ML2010-3	3	11	80	y	
115	Nov-18	Marsdenia longiloba	L4	ML2010-3	1				db
116	Nov-18	Marsdenia longiloba	L4	ML127	1				db
117	Nov-18	Marsdenia longiloba	L4	MLN-3	3	12	75	y	
118	Nov-18	Marsdenia longiloba	L4	MLN-3	2	3	10	n	resprout
119	Nov-18	Marsdenia longiloba	L4	MLN-3	1				db
120	Nov-18	Marsdenia longiloba	L4	MLN-3	1				db
121	Nov-18	Marsdenia longiloba	L4	ML2010-4	1				db
122	Nov-18	Marsdenia longiloba	L4	ML2010-4	1				db
123	Nov-18	Marsdenia longiloba	L4	MLN-4	3	11	90	y	
124	Nov-18	Marsdenia longiloba	L4	MLN-4	1				db
125	Nov-18	Marsdenia longiloba	L4	TWN-2	1				db
126	Nov-18	Marsdenia longiloba	L4	TWN-2	1				db
127	Nov-18	Marsdenia longiloba	L4	TWN-2	1				db
128	Nov-18	Marsdenia longiloba	L3	MLN-4	1				db
129	Nov-18	Marsdenia longiloba	L3	MLN-4	1				db
130	Nov-18	Marsdenia longiloba	L3	MLN-4	3	2	190	y	2 lvs and long new shoot
131	Nov-18	Marsdenia longiloba	L3	MLN-4	1				db
132	Nov-18	Marsdenia longiloba	L3	MLN-3	1				db
133	Nov-18	Marsdenia longiloba	L3	MLN-3	1				db
134	Nov-18	Marsdenia longiloba	L3	MLN-3	1				db
135	Nov-18	Marsdenia longiloba	L3	ML3	1				db
136	Nov-18	Marsdenia longiloba	L3	ML3	1				db
137	Nov-18	Marsdenia longiloba	L3	ML3	2	1	90	n	poor condition
138	Nov-18	Marsdenia longiloba	L3	ML3	1				db
139	Nov-18	Marsdenia longiloba	L3	ML3	1				db
140	Nov-18	Marsdenia longiloba	L3	ML2	3	7	160	y	on Trochocarpa laurina
141	Nov-18	Marsdenia longiloba	L3	ML2	1				db
142	Nov-18	Marsdenia longiloba	L3	ML3	1				db
143	Nov-18	Marsdenia longiloba	L3	ML3	1				db
144	Nov-18	Marsdenia longiloba	L3	UTW10	1				db
145	Nov-18	Marsdenia longiloba	L3	UTW10	1				db
146	Nov-18	Marsdenia longiloba	L3	UML8	1				db
147	Nov-18	Marsdenia longiloba	L3	ML3	1				db

No	Date	Species	Line	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
148	Nov-18	Marsdenia longiloba	L3	ML3	3	5	15	y	resprout

Slender Marsdenia - Sector F

No	Species	Line	Date	Cond.	No. leaves	Height (cm)	New Shoots (Y/N)	Comment
F1	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F2	Marsdenia longiloba	Line 1 fert	Nov-18	3	13	90	y	
F3	Marsdenia longiloba	Line 1 fert	Nov-18	3	5	110	y	
F4	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F5	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F6	Marsdenia longiloba	Line 1 fert	Nov-18	2	6	80	n	dying
F7	Marsdenia longiloba	Line 1 fert	Nov-18	2	4	60	n	Yellowed leaves
F8	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F9	Marsdenia longiloba	Line 1 fert	Nov-18	3	2	20	y	resprout
F10	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F11	Marsdenia longiloba	Line 1 fert	Nov-18	3	6	10	y	resprout
F12	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F13	Marsdenia longiloba	Line 1 fert	Nov-18	3	12	180	y	on Cordyline stricta
F14	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F15	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F16	Marsdenia longiloba	Line 1 fert	Nov-18	3	5	10	y	resprout
F17	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F18	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F19	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
F20	Marsdenia longiloba	Line 1 fert	Nov-18	2	2	40	n	
F21	Marsdenia longiloba	Line 1 fert	Nov-18	3	6	25	y	resprout
F22	Marsdenia longiloba	Line 1 fert	Nov-18	1				db
NF23	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF24	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF25	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF26	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF27	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF28	Marsdenia longiloba	Line 2 no fert	Nov-18	3	6	65	y	

No	Species	Line	Date	Cond.	No. leaves	Height (cm)	New Shoots (Y/N)	Comment
NF29	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF30	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF31	Marsdenia longiloba	Line 2 no fert	Nov-18	4	18	150	y	on Tabernaemontana pandacaqui
NF32	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF33	Marsdenia longiloba	Line 2 no fert	Nov-18	3	4	5	y	under dense Cissus hypoglauca
NF34	Marsdenia longiloba	Line 2 no fert	Nov-18	3	10	65	y	
NF35	Marsdenia longiloba	Line 2 no fert	Nov-18	3	4	40	y	reshooting
NF36	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF37	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF38	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF39	Marsdenia longiloba	Line 2 no fert	Nov-18	3	10	140	y	on Synoum glandulosum
NF40	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db - cage knocked over
NF41	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF42	Marsdenia longiloba	Line 2 no fert	Nov-18	1				
NF43	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF44	Marsdenia longiloba	Line 2 no fert	Nov-18	2	2	6	n	
NF44a	Marsdenia longiloba	Line 2 no fert	Nov-18	1				db
NF44b	Marsdenia longiloba	Line 2 no fert	Nov-18	3	10	75	y	
F45	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F46	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F47	Marsdenia longiloba	Line 3 fert	Nov-18	3	6	20	y	resprout
F48	Marsdenia longiloba	Line 3 fert	Nov-18	4	23	100	y	
F49	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F50	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F51	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F52	Marsdenia longiloba	Line 3 fert	Nov-18	3	4	50	y	
F53	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F54	Marsdenia longiloba	Line 3 fert	Nov-18	4	22	80	y	phone pics
F55	Marsdenia longiloba	Line 3 fert	Nov-18	3	13	70	y	on Alpinia arundelliana. Good condition
F56	Marsdenia longiloba	Line 3 fert	Nov-18	5	40	190	y	on Piliodistigma - heavy flowering - pics
F57	Marsdenia longiloba	Line 3 fert	Nov-18	3	9	90	y	
F58	Marsdenia longiloba	Line 3 fert	Nov-18	3	4	60	y	Resprouted. Under tree fall debris
F59	Marsdenia longiloba	Line 3 fert	Nov-18	3	8	70	y	
F60	Marsdenia longiloba	Line 3 fert	Nov-18	3	9	40	y	fair cond
F61	Marsdenia longiloba	Line 3 fert	Nov-18	1				db

No	Species	Line	Date	Cond.	No. leaves	Height (cm)	New Shoots (Y/N)	Comment
F62	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F63	Marsdenia longiloba	Line 3 fert	Nov-18	3	4	25	y	
F64	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F65	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
F66	Marsdenia longiloba	Line 3 fert	Nov-18	1				db
NF67	Marsdenia longiloba	Line 4 no fert	Nov-18	3	1	80	y	only 1 leaf but long new shoots
NF68	Marsdenia longiloba	Line 4 no fert	Nov-18	3	7	75	y	
NF69	Marsdenia longiloba	Line 4 no fert	Nov-18	3	9	90	y	
NF70	Marsdenia longiloba	Line 4 no fert	Nov-18	4	20	170	y	on small dead shrub and Trochocarpa laurina
NF71	Marsdenia longiloba	Line 4 no fert	Nov-18	3	8	15	y	resprout
NF72	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF73	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF74	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF75	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF76	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF77	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF78	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db - no wild plants seen this year.
NF79	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF80	Marsdenia longiloba	Line 4 no fert	Nov-18	3	4	120	y	on Turpentine sapling
NF81	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF82	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF83	Marsdenia longiloba	Line 4 no fert	Nov-18	3	6	90	y	
NF84	Marsdenia longiloba	Line 4 no fert	Nov-18	2	2	60	n	
NF85	Marsdenia longiloba	Line 4 no fert	Nov-18	3	10	100	y	
NF86	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF87	Marsdenia longiloba	Line 4 no fert	Nov-18	1				db
NF88	Marsdenia longiloba	Line 4 no fert	Nov-18	0				gone

Slender Marsdenia - Sector J

Monit. No.	Species	Line	Fertiliser	Date	Cond	No. Lvs	Ht (cm)	New Shoots (Y/N)	Comment
Line 1 1	Marsdenia longiloba	L1	no fert	31-Oct-18	3	6	100	y	
2	Marsdenia longiloba	L1	no fert	31-Oct-18	3	7	90	y	
3	Marsdenia longiloba	L1	no fert	31-Oct-18	3	6	90	y	
4	Marsdenia longiloba	L1	no fert	31-Oct-18	3	7	100	y	
5	Marsdenia longiloba	L1	no fert	31-Oct-18	4	38	150	y	phone pics
6	Marsdenia longiloba	L1	no fert	31-Oct-18	3	9	80	y	
7	Marsdenia longiloba	L1	no fert	31-Oct-18	3	6	75	y	
8	Marsdenia longiloba	L1	no fert	31-Oct-18	2	1	90	y	only just shooting
9	Marsdenia longiloba	L1	no fert	31-Oct-18	3	6	100	y	on Morinda
10	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
11	Marsdenia longiloba	L1	no fert	31-Oct-18	3	8	100	y	
12	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
13	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
14	Marsdenia longiloba	L1	no fert	31-Oct-18	2	2	70	y	new lvs but not good cond
15	Marsdenia longiloba	L1	no fert	31-Oct-18	2	5	5	y	just resprouting
16	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
17	Marsdenia longiloba	L1	no fert	31-Oct-18	2	4	5	y	just resprouting
18	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
19	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
20	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
21	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db - under tree fall debris
22	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
23	Marsdenia longiloba	L1	no fert	31-Oct-18	1		0		db
24	Marsdenia longiloba	L1	no fert	31-Oct-18	2	3	80	y	just resprouting but poor cond
25	Marsdenia longiloba	L1	no fert	31-Oct-18	3	8	50	y	
Line 2 1	Marsdenia longiloba	L2	fert	31-Oct-18	3	5	70	y	
2	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
3	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
4	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
5	Marsdenia longiloba	L2	fert	31-Oct-18	3	2	100	y	
6	Marsdenia longiloba	L2	fert	31-Oct-18	3	10	190	y	on small Turpentine above cage
7	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
8	Marsdenia longiloba	L2	fert	31-Oct-18	3	6	5	y	resprout
9	Marsdenia longiloba	L2	fert	31-Oct-18	3	5	100	y	good health despite sapling fallen on cage

10	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
11	Marsdenia longiloba	L2	fert	31-Oct-18	2	2	40	n	
12	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
13	Marsdenia longiloba	L2	fert	31-Oct-18	2	4	5	n	reshooting at ground level
14	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
15	Marsdenia longiloba	L2	fert	31-Oct-18	3	6	25	y	
16	Marsdenia longiloba	L2	fert	31-Oct-18	3	5	80	y	
17	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
18	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
19	Marsdenia longiloba	L2	fert	31-Oct-18	2	6	5	y	resprout
20	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
21	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
22	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
23	Marsdenia longiloba	L2	fert	31-Oct-18	2	5	5	n	resprout
24	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
25	Marsdenia longiloba	L2	fert	31-Oct-18	1		0		db
Line 3 1	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
2	Marsdenia longiloba	L3	no fert	31-Oct-18	3	5	10	y	resprout
3	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
4	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
5	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
6	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
7	Marsdenia longiloba	L3	no fert	31-Oct-18	3	8	120	y	climbing onto Morinda and Synoum
8	Marsdenia longiloba	L3	no fert	31-Oct-18	3	6	80	y	
9	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db - but wild Marsdenia longiloba also present
10	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
11	Marsdenia longiloba	L3	no fert	31-Oct-18	2	1	20	n	
12	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
13	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
14	Marsdenia longiloba	L3	no fert	31-Oct-18	3	4	70	y	just reshooting
15	Marsdenia longiloba	L3	no fert	31-Oct-18	3	5	10	y	resprout
16	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
17	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
18	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
19	Marsdenia longiloba	L3	no fert	31-Oct-18	3	10	110	y	
20	Marsdenia longiloba	L3	no fert	31-Oct-18	2	2	5	n	resprout
21	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
22	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db

23	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
24	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
25	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
26	Marsdenia longiloba	L3	no fert	31-Oct-18	1		0		db
27	Marsdenia longiloba	L3	no fert	31-Oct-18	5	50	400	y	Flowering - robust plant climbing Cordyline and Glochidion from cage - pics
Line 4 1	Marsdenia longiloba	L4	fert	31-Oct-18	2	1	50	n	Green stem, 1 small leaf
2	Marsdenia longiloba	L4	fert	31-Oct-18	3	6	70	y	
3	Marsdenia longiloba	L4	fert	31-Oct-18	3	4	70	y	
4	Marsdenia longiloba	L4	fert	31-Oct-18	2	1	30	y	resprout after recent heavy rains
5	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db - east side of creekline
6	Marsdenia longiloba	L4	fert	31-Oct-18	4	15	200	y	Growing up Turpentine sapling beside cage
7	Marsdenia longiloba	L4	fert	31-Oct-18	3	4	20	y	db
8	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
9	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
10	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
11	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
12	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
13	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
14	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
15	Marsdenia longiloba	L4	fert	31-Oct-18	3	9	100	y	
16	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
17	Marsdenia longiloba	L4	fert	31-Oct-18	3	6	60	y	
18	Marsdenia longiloba	L4	fert	31-Oct-18	3	4	50	y	
19	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
20	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
21	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
22	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
23	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
24	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
25	Marsdenia longiloba	L4	fert	31-Oct-18	1		0		db
26	Marsdenia longiloba	L4	fert	31-Oct-18	2	1	40	n	under fallen Forest Oak

Woolls's Tylophora - Sector B

No	Date	Line	Tentative Species ID	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
64	Oct-18	L8 east, gate	Tylophora woollsii	ML46-6	1		0		db
65	Oct-18	L8	Tylophora woollsii	ML46-	1		0		db
66	Oct-18	L8	Tylophora woollsii	ML48-5	1		0		db
67	Oct-18	L8	Tylophora woollsii	ML46-1	1		0		db. P. dorrigoensis on cage
68	Oct-18	L8	Tylophora woollsii	ML46	1		0		db
69	Oct-18	L8	Tylophora woollsii	ML46-	1		0		db
70	Oct-18	L8	Tylophora woollsii	ML46-3	1		0		db
71	Oct-18	L8	Tylophora woollsii	ML46-2	1		0		db
72	Oct-18	L8	Tylophora woollsii	ML47-3	1		0		db
73	Oct-18	L8	Tylophora woollsii	ML47-10	1		0		db
74	Oct-18	L8	Tylophora woollsii	ML46-6	1		0		db
75	Oct-18	L8	Tylophora woollsii	ML47-4	1		0		db
76	Oct-18	L8	Tylophora woollsii	ML48	1		0		db
77	Oct-18	L8	Tylophora woollsii	ML48-2	1		0		db
78	Oct-18	L8	Tylophora woollsii	ML47-5	1		0		db
79	Oct-18	L8	Tylophora woollsii	ML46-4	1		0		db
80	Oct-18	L8	Tylophora woollsii	ML47-6	1		0		db
81	Oct-18	L8	Tylophora woollsii	new near TA	1		0		db
82	Oct-18	L8	Tylophora woollsii	new near TA	1		0		db
83	Oct-18	L8	Tylophora woollsii	ML45-3	2	4	7	y	resprout - T. paniculata?
84	Oct-18	L8	Tylophora woollsii	ML45-2	1		0		db
85	Oct-18	L9	Tylophora woollsii	ML45-6	1		0		db
86	Oct-18	L9	Tylophora woollsii	ML45-10	1		0		db
87	Oct-18	L9	Tylophora woollsii	ML45-4	2	4	30	y	resprout
88	Oct-18	L9	Tylophora woollsii	ML48-4	1		0		db
89	Oct-18	L9	Tylophora woollsii	ML47-8	1		0		db
90	Oct-18	L9	Tylophora woollsii	ML46-7	1		0		db
91	Oct-18	L9	Tylophora woollsii	ML47-7	1		0		db
92	Oct-18	L9	Tylophora woollsii	ML48-1	1		0		db
93	Oct-18	L9	Tylophora woollsii	ML48-5	1		0		db
94	Oct-18	L9	Tylophora woollsii	ML48-7	1		0		db
95	Oct-18	L9	Tylophora woollsii	ML48-4	1		0		db

No	Date	Line	Tentative Species ID	Source Label	Cond	No. lvs	Height (cm)	New Shoots (Y/N)	Comment
96	Oct-18	L9	Tylophora woollsii	ML	2	4	10	y	resprout - T. paniculata?
97	Oct-18	L9	Tylophora woollsii	ML47-9	2	4	40	y	resprout - T. paniculata?
98	Oct-18	L9	Tylophora woollsii	ML48-7	1		0		db
99	Oct-18	L9	Tylophora woollsii	ML48	1		0		db
100	Oct-18	L9	Tylophora woollsii	ML47-10	1		0		db
101	Oct-18	L9	Tylophora woollsii	ML45-5	1		0		db
102	Oct-18	L9	Tylophora woollsii	ML45-8	1		0		db
103	Oct-18	L9	Tylophora woollsii	ML48-9	1		0		db
104	Oct-18	L9	Tylophora woollsii	ML48-1	1		0		db
105	Oct-18	L9	Tylophora woollsii	ML48-8	1		0		db

Rusty Plum & Red Bopple Nut

Monitoring Number	Condition notes	Condition Score	Height (m)	Comments
Rusty Plum 1	split one from Boggy Creek shooting	4	0.5	One healthy shoot from base of main stem
Rusty Plum 2	split one from Boggy Creek shooting	0	0	dead
Rusty Plum 3	good - lot of new shoots	4	3.5	In excellent health
Red Bopple Nut		5	3.1	Excellent - new growth, basal suckers, flowering

Spider Orchid – TA2

No	Date	Source Label	Species	Cond 2018	Pseudobulbs with leaves	Longest pseudobulb	New growth active	Notes
2	01-Nov-18	so-87	Dendrobium melaleucaphilum	4	7	15	y	wired to fallen Swamp Oak limb
3	01-Nov-18	so-74	Dendrobium melaleucaphilum	4	4	5	y	
4	01-Nov-18	so-26b	Dendrobium melaleucaphilum	4	5	16	y	re-found
5	01-Nov-18	so-48	Dendrobium melaleucaphilum	4	4	15	y	re-found near 7
6	01-Nov-18	so-52	Dendrobium melaleucaphilum	4	3	7	y	adjacent to 7
7a (bottom)	01-Nov-18	so-36	Dendrobium melaleucaphilum	4	4	4	y	
7b (top)	01-Nov-18	so-36	Dendrobium melaleucaphilum	4	7	40	y	
8a (left)	01-Nov-18	so-62	Dendrobium melaleucaphilum	4	4	22	y	
8b (right)	01-Nov-18	so-62	Dendrobium melaleucaphilum	4	6	37	y	

No	Date	Source Label	Species	Cond 2018	Pseudobulbs with leaves	Longest pseudobulb	New growth active	Notes
9	01-Nov-18	so-25	Dendrobium melaleucaphilum	0	0	0	dead	dead
10	01-Nov-18	so-24	Dendrobium melaleucaphilum	4	3	1	y	
11a	01-Nov-18	so-29	Dendrobium melaleucaphilum	4	2	10	y	
11b	01-Nov-18	so-29	Dendrobium melaleucaphilum	2	2	2.5	n	
11c	01-Nov-18	so-29	Dendrobium melaleucaphilum	0	0	0	dead	dead
12	01-Nov-18	so-65	Dendrobium melaleucaphilum	4	7	22	y	Well away from other plants in SE corner
13	01-Nov-18	so-64	Dendrobium melaleucaphilum	4	4	14	y	
14	01-Nov-18	so-28	Dendrobium melaleucaphilum	4	5	10	y	
15	01-Nov-18	so-24	Dendrobium melaleucaphilum	4	5	8	y	
16	01-Nov-18	so-53	Dendrobium melaleucaphilum	3	1	12	n	
17	01-Nov-18	so-26b	Dendrobium melaleucaphilum	0	0	0	gone	gone
18	01-Nov-18	so-23	Dendrobium melaleucaphilum	0	0	0	gone	gone
19	01-Nov-18	so-88	Dendrobium melaleucaphilum	4	8	39	y	
20	01-Nov-18	so-86	Dendrobium melaleucaphilum	3	2	15	n	
21	01-Nov-18	so-86-1	Dendrobium melaleucaphilum	3	3	20	n	adjacent to 22
22	01-Nov-18	so-35	Dendrobium melaleucaphilum	4	8	21	y	v healthy - pic
23a (bottom)	01-Nov-18	so-86-	Dendrobium melaleucaphilum	4	1	1	y	tiny plant
23b (top)	01-Nov-18	so-86-	Dendrobium melaleucaphilum	4	2	1	y	tiny plant
24	01-Nov-18	so-86-3	Dendrobium melaleucaphilum	4	3	1	y	
25	01-Nov-18	so-86-4	Dendrobium melaleucaphilum	0	0	0	gone	gone
26	01-Nov-18	so-43	Dendrobium melaleucaphilum	0	0	0	gone	gone
27	01-Nov-18	so-67	Dendrobium melaleucaphilum	0	0	0	gone	gone
28	01-Nov-18	so-68	Dendrobium melaleucaphilum	3	3	38	n	
29a (bottom)	01-Nov-18	so-2	Dendrobium melaleucaphilum	0	0	0		not found
29b	01-Nov-18	so-2	Dendrobium melaleucaphilum	0	0	0		not found
29c (top)	01-Nov-18	so-2	Dendrobium melaleucaphilum	0	0	0		not found
30	01-Nov-18	so-57	Dendrobium melaleucaphilum	3	3	1	n	
31	01-Nov-18	so-30	Dendrobium melaleucaphilum	4	2	3.5	y	
32	01-Nov-18	so-82	Dendrobium melaleucaphilum	2	0	1.5	n	
33	01-Nov-18	so-66	Dendrobium melaleucaphilum	4	6	4	y	
34	01-Nov-18	so-38	Dendrobium melaleucaphilum	3	2	5	n	
35	01-Nov-18	so-86-13	Dendrobium melaleucaphilum	0	0	0	gone	gone
36	01-Nov-18	so-82	Dendrobium melaleucaphilum	3	2	3	n	
37	01-Nov-18	so-86-5	Dendrobium melaleucaphilum	0	0	0		dead

No	Date	Source Label	Species	Cond 2018	Pseudobulbs with leaves	Longest pseudobulb	New growth active	Notes
38	01-Nov-18	Dm34a	Dendrobium melaleucaphilum	4	2	5	y	
39	01-Nov-18	so-86-12	Dendrobium melaleucaphilum	3	2	23	n	
40	01-Nov-18	so-86-6	Dendrobium melaleucaphilum	4	2	1	y	
41	01-Nov-18	so-86-7	Dendrobium melaleucaphilum	2	1	1	n	
42	01-Nov-18	no label	Dendrobium melaleucaphilum	0	0	0	gone	gone
43	01-Nov-18	so-86-14	Dendrobium melaleucaphilum	4	3	1	y	on cheese tree
45	01-Nov-18	so-86-11	Dendrobium melaleucaphilum	0	0	0	dead	dead
46a (bottom)	01-Nov-18	so-64	Dendrobium melaleucaphilum	0	0	0		dead
46b	01-Nov-18	so-64	Dendrobium melaleucaphilum	3	3	1.5	n	
46c	01-Nov-18	so-64	Dendrobium melaleucaphilum	4	5	3	y	
46d	01-Nov-18	so-64	Dendrobium melaleucaphilum	4	4	1.5	y	at pink flagging
46e	01-Nov-18	so-64	Dendrobium melaleucaphilum	3	2	1	n	
46f	01-Nov-18	so-64	Dendrobium melaleucaphilum	2	2	1	n	
46g (top)	01-Nov-18	so-64	Dendrobium melaleucaphilum	2	1	1	n	
no yellow tag	01-Nov-18	so-58	Dendrobium melaleucaphilum	4	7	2.5	y	upper plant only
47	01-Nov-18	so-86-9	Dendrobium melaleucaphilum	0	0	0		not found
48	01-Nov-18	so-86-10	Dendrobium melaleucaphilum	0	0	0		not found