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Level 3, 441 St Kilda Road | Melbourne Vic 3004 | Australia
PO Box 7440 | Melbourne VIC 3004 | Australia
Phone: +61 3 9828 5333 | Fax: +61 3 9820 0136

MEN403-C1 -S0116
AR: ar

21 December 2017

Ms Madelyn Nunn
VicTrack
1010 La Trobe Street
DOCKLANDS VIC 3008

Dear Madelyn

YEAR 7 ANNUAL MONITORING OF TRANSLOCATED MATTED FLAX-LILY FOR THE SOUTH MORANG RAIL EXTENSION PROJECT

The South Morang Rail Extension Project (SMREP) was a controlled action based on the impacts of two Matters of National Environmental Significance (MNES), matted flax-lily (*Dianella amoena*) and Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP). The project was granted approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), subject to conditions, which include the implementation of the *Translocation Plan for the Matted Flax-lily* (Translocation Plan). The Translocation Plan Revision 3 (SMREP 2014) is referenced throughout this report.

Condition 5 of the EPBC 2010/5313 approval requires ongoing reporting of project compliance with the approval conditions.

PURPOSE

The translocation plan developed for the matted flax-lily requires that an annual report be prepared every year for ten years on the status of the plan and the condition of the translocated plants following translocation. This report has been prepared to document the results of the Year 7 monitoring of matted flax-lily and meets the requirement of the translocation plan, which includes the following:

- reporting on the health and success of the translocated plants
- current condition of each of the four receptor sites, including an assessment of the state of threats to translocated matted flax-lily health and survival, such as weeds, pest animals and biomass
- proposed changes to site management if required, to appropriately manage threats to the translocated matted flax-lily
- reporting against each approval condition required for the project under EPBC 2010/5313.

SALVAGE AND TRANSLOCATION

The salvage of the matted flax-lily from the SMREP corridor took place from 30 September to 6 October 2010. A total of 98 distinct patches were removed from the corridor. From the 98 patches, 422 sections were removed, which resulted in the following distribution of sections:

- 183 sections directly planted into the receptor sites, excluding Receptor Site 3

- 135 sections taken to the nursery for subsequent plantings (delayed translocation)
- 104 sections taken to the nursery for insurance.

The total sections that were planted into each receptor site via direct translocation (September - October 2010) or delayed translocation (which included some insurance plants at the request of Parks Victoria in August 2011) was as follows:

- 50 sections planted into site 1
- 186 sections planted into site 2
- 109 sections planted into site 3 (site 3 includes only delayed translocation plants)
- 33 sections planted into site 4.

This totals 378 planted salvaged plants, with remaining plants held and managed at a Parks Victoria nursery for use as Insurance Plants. The insurance plants are no longer required for the Translocation Plan and are now the property of Parks Victoria.

METHOD

Annual matted flax-lily monitoring was undertaken by two ecologists over two days, on 16 and 17 October 2017 at the four receptor sites. Monitoring was completed in accordance with the reduced monitoring method outlined in the translocation plan (SMREP 2014), which included a presence/absence survey and assessment of general health of each plant.

All of the translocated (direct and delayed translocation) matted flax-lily were monitored. The monitoring of direct translocated plants corresponds with the Year 7 monitoring period, the monitoring of delayed translocated plants corresponds with the Year 6 monitoring period.

Identification of threats and risks to the translocated matted flax-lily are based on observations made by the ecologists over several years monitoring the sites and the species. These observations are considered in the recommendations for any adaptive management.

Data collection

The assessment of the general health of the plant at the time of translocation was recorded based on five discrete categories ranging from Dead to Very Healthy. Similarly, during the current annual monitoring each section translocated into a receptor site was assigned one of the following health categories:

- Dead; plant generally with dead or dying leaves and no new growth
- Poor health; most leaves in poor condition, evidence of heavy herbivory or large areas of ‘browning’ of the leaves; > 30% of leaf area affected
- Moderate health; leaves either containing some level of ‘browning’ or some herbivory; 10 to 30% of leaf area affected
- Good health; leaves generally healthy, containing minimal evidence of herbivory or ‘browning’; < 10% of leaf area affected
- Very healthy; plant very healthy with no signs of herbivory or ‘browning’.

Data analysis

Data derived on the health of each plant was assigned an arbitrary health index score ranging from 0 to 100 to allow statistical analysis of health over time (Dead 0, Poor 25, Moderate 50, Good health 75, and Very healthy 100).

Plant health was analysed using T–tests (Excel 2010) to determine whether change in health was statistically significant. T–tests are a simple measure of similarity, used to compare the mean of two data sets and determine if

they are significantly different. Results with p-values of <0.05 were considered to be a significant change, and results with p-values of <0.01 were considered to be highly significant.

RESULTS

Plant health

In total 378 direct and delayed translocated matted flax-lily sections were monitored. The locations of the matted flax-lily planted monitored are included in the attached site plans.

This includes 183 direct translocated sections and 195 delayed translocation sections. Of these, 19 sections were not located during the current monitoring, with no above ground material present. These plants were assigned a rating of 'Dead' in the general health assessment. Therefore the current survival rate for the translocated matted flax-lily is 95 per cent.

The survival rate has decreased since the previous monitoring period (2016), with a further six plants considered dead. The last two years combined have seen the number of dead plants increase by 11, more than double the previous 4 years. The survival rate is still well above the required target survival rate of 85 per cent (SMREP 2014).

The majority of plants considered to be dead were located in Site 2, where no material was observed for 13 plants. Five plants within Site 3 were considered dead and one in Site 1. It is noted that four of the dead plants from the 2016 monitoring have recovered to display above ground material.

The overall health of the translocated plants is generally steady, although a decrease was observed in delayed translocated plants, with the direct translocated plants stable. The observed health of all plants from Very Healthy to Dead is presented in Figure 1, below.

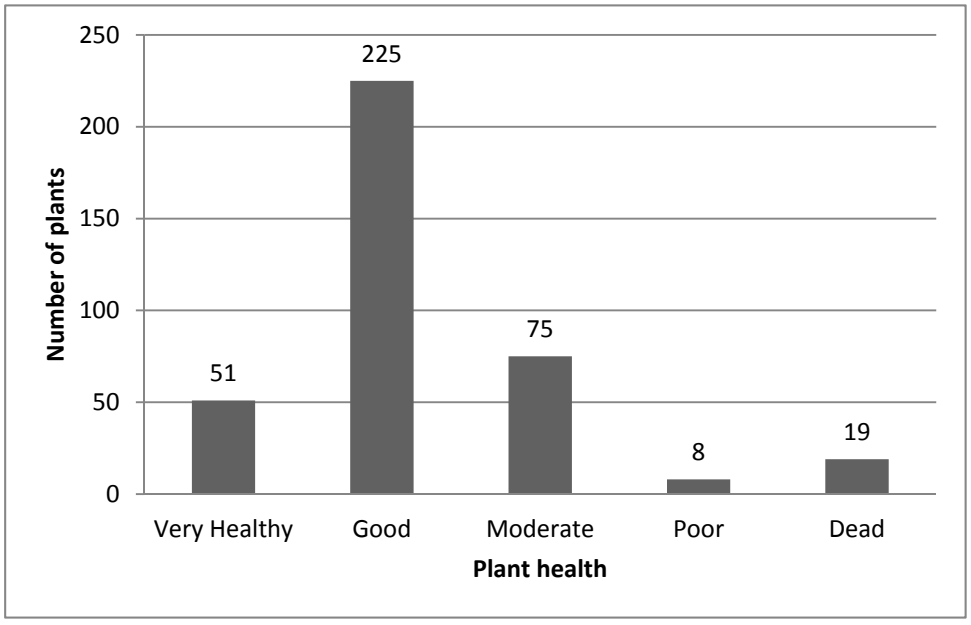


Figure 1. Overall plant health of translocated matted flax-lily

Direct translocation

The overall plant health (i.e. average health index) has declined significantly (P-value = <0.01) from the results recorded in 2016 (Table 1), where the overall health index was an average of 93. This is due to significant declines observed in all sites. The overall average health has decreased from a very healthy population to be on average in good health.

Table 1 Average health results for direct translocation matted flax -lily

Time since translocation	Site 1	Site 2	Site 4	Overall
Baseline	81	82	78	82
1 month	68**	63**	80	65**
3 months	79**	72**	84	74**
6 months	97**	93**	96**	94**
12 months	96	93	96	94
18 months	72**	67**	81**	68**
2 years	75	53**	91*	61**
3 years	94**	67**	88	74**
4 years	78**	65	81	69*
5 years	86	94**	93	93**
6 years	97*	91	99	93
7 years	79**	74**	76**	75**

*Significance of mean health variables using T-test where *P<0.05 and P<0.01***

Delayed translocation

The overall average plant health of the delayed translocation plants showed a significant (P-value = <0.01) decrease (Table 2). This is despite an increase in the average health of translocated plants within Site 3; however, this was not statistically significant. The overall average decrease was mostly influenced by the large decrease s (P-value = <0.01) observed in Site 2 and Site 4.

Table 2 Average health results for delayed translocation matted flax-lily

Time since translocation	Site 1	Site 2	Site 3	Site 4	Overall
Baseline	75	79	81	79	80
1 month	49**	31**	43**	81	43**
3 months	75**	70**	71**	81	72**
12 months	88	73	95**	96**	88**
18 months	24**	16**	24**	25**	22**
2 years	100**	55**	57**	83**	62**
3 years	76**	50	53*	94*	57*
4 years	89**	80**	75**	96	79**
5 years	98*	79	46**	100	73**
6 years	85**	54**	60	79**	62**

*Significance of mean health variables using T-test where *P<0.05 and P<0.01***

SITE CONDITION AND ADAPTIVE MANAGEMENT

Site 1

Site 1 is located toward the southern end of the Plenty Gorge Parklands, Mill Park, and is managed by Parks Victoria (see Attachment 1).

This site is considered to be in very good condition, with a high cover of native vegetation, particularly kangaroo grass (*Themeda triandra*) across the site and high abundance of other native lilies and orchids. Biomass was comparatively low compared to the other receptor sites and surrounding areas. This is likely due to the dominance of native grasses at Receptor Site 1, compared to higher levels of exotic grasses within the other receptor sites.

The cover of annual exotic grasses is considered to have increased by approximately 5 per cent cover over the site from the previous year. As noted in the 2016 report (KBR 2016), last years' exotic grass levels were considered to be the highest for some years, which indicates the cover is steadily increasing. Of note this year sweet vernal grass (*Anthoxanthum odoratum*) was dominant, along with cocksfoot (*Dactylis glomerata*) and annual veldt grass (*Ehrharta longiflora*). As noted previously, areas where these grasses are in higher concentrations are generally not located where translocated matted flax-lily are present and therefore do not pose an immediate risk to the health of the translocated plants.

Woody weeds were also considered to have increased in cover, though only marginally (less than 5 per cent overall increase). These were generally briar rose (*Rosa rubiginosa*) and blackberry (*Rubus fruticosus* spp. agg.). One other significant weed specie was observed within the site, with bridal creeper (*Asparagus asparagoides*) observed in small discrete locations. As noted above with grassy weeds, these weeds are not considered an immediate threat to the matted flax-lily as they are not located close to the plants; however, these species will likely impact the plants if unmanaged.

Evidence of rabbits was present on site, including grazing on some of the translocated matted flax-lily located in the centre of the receptor site. The grazing did not appear recent and the matted flax-lily appeared to have recovered since. However, it is noted that the plants appear to be preferentially grazed, compared to surrounding grasses.

The site should be assessed for current rabbit activity, including for any warrens, and breaches in the fence. No obvious breach locations where observed during site monitoring. If rabbits are found, rabbit control should be conducted and any warrens should be destroyed. Any damages or breaches in the fence should be fixed.

No recommendations for adaptive management are required, as it is expected that the proposed site management is suitable to control the site threats. Although areas of high threat grassy and woody weeds, plus bridal creeper, should be targeted for control to maintain control over the potential site threats.

Figure 2. Evidence of rabbit grazing on a translocated matted flax-lily in Receptor Site 1

Site 2

Site 2 is located in the northern end of Plenty Gorge Parklands, accessed from Bridge Inn Road, Mernda and is managed by Parks Victoria (see Attachment 1).

As noted during 2016, biomass within the overall site appears moderate in comparison to previous years, particularly before the burn conducted in 2015. However, weed levels remain high across the site and biomass is high in some locations, particularly at the southern and eastern end of the site and in some parts along the western boundary. High biomass in these locations is considered to be directly impacting the health of the matted flax-lily plants. Many of the plants that were considered dead were located in these locations.

Grass species are directly impacting translocated matted flax-lily. Species that are large or form dense patches and have an apparent allelopathic effect on surrounding vegetation are outcompeting and affecting the health of the matted flax-lilies. Aggressive grassy weeds in this site include phalaris (Phalaris aquatica), which form a large and

dense tussock (see Figure 3), Yorkshire fog (Holcus lanatus) and sweet vernal grass, which form less biomass, but will form dense clumps and are often observed competing for space.

Figure 3. Large phalaris tussock on a matted flax-lily.

In addition to exotic grass cover, a number of high threat weeds remain present at the site and are increasing in cover. These are Chilean needle-grass (*Nassella neesiana*) and spear thistle (*Cirsium vulgare*), which have both increased in cover notably from 2016; plus Paterson's curse (*Echium plantagineum*), hawthorn (*Crateagus monogyna*) and blackberry.

It was noted upon arrival at the site that the gate was open. Evidence was found of rabbits frequenting the site and grazing on matted flax-lily. It was also noted that when the gates were closed, there was still sufficient gap for rabbits to squeeze through.

It was also noted that while rabbits were grazing on the matted flax-lily, grazing also occurred on surrounding grass that compete with matted flax-lily. As a consequence, plants that were grazed were generally wider plants and contained more leaves, than those plants that were affected by high biomass, which were often reduced to one or two leaves in poor condition.

Light grazing may benefit the species, however, if rabbits became established within the site, and are free of predators, like foxes, they will be likely to cause significant damage to the translocated plants, including preventing flowering and seeding.

It is recommended that the skirt of the fence be repaired and rabbit control undertaken as a priority. In addition, Parks Victoria should consider modifying the fence to prevent rabbit access, but allow kangaroo grazing. For instance the gates could be removed and wire mesh strung between the poles to ensure it is rabbit-proof.

If this were to be implemented it is recommended that the fences be closed to kangaroo grazing between November and February, inclusive, avoiding the flowering season for the species.

In summary, the following recommendations are proposed for adaptive management at Site 2, in order of importance:

- Additional weed control to target high threat grass species, sweet vernal-grass, paspalum, phalaris and Yorkshire fog should include spot-spraying with herbicide in the vicinity (1-2 m of flags) of matted flax-lily plants. Where high biomass surrounds the plant, some over-spraying may occur, which is considered acceptable, as the matted flax-lily is often contained beneath the targeted weed and will likely benefit from space being created;

- Additional weed control for the increasing cover of high threat weeds across the site. Spear thistle in high concentrations should be targeted along with Chilean needle-grass. Woody weeds, blackberry, briar rose and hawthorn should be targeted to reduce cover to less than 1 per cent;
- Undertake fence and gate maintenance to prevent rabbits entering the site. The gates may need to be adjusted to ensure rabbit access is prevented. Review the site for rabbit activity following fence repairs. Conduct rabbit control if rabbits are within the site. The area should also be searched for any active warrens;
- Consideration by Parks Victoria to modify the fence to allow seasonal access and grazing by kangaroos between March and October.

Site 3

Site 3 is also located at the northern end of Plenty Gorge Parklands, on the west side of Plenty River (see Attachment 1) and to the south of Site 2. The site is managed by Parks Victoria. PTV recently handed over the management of the site to Parks Victoria, following an extensive revegetation program.

Following the revegetation program, the majority of the site is dominated by indigenous grasses. This revegetation program did not include two plots that contain the translocated matted flax-lily, and the north eastern boundary of the site.

The two plots within Site 3 which contain the translocated matted flax-lily are considered to be in a moderate condition with high levels of biomass and increased annual and perennial grass cover across the plots. Notably in the northern plot, located adjacent to the north eastern boundary and not included in the revegetation program, there is increasing cover of high threat weeds (approximately 10 per cent from 2016) dominated by Chilean needle-grass.

The southern plot was considered to be in similar condition to the previous year, though high threat perennial grass weeds, including phalaris and paspalum, have been controlled. However during the year other species, notably sweet vernal grass, has increased in cover.

The north eastern boundary of the receptor site contains the highest concentration of weeds. This area has high concentrations of Chilean needle-grass, which is spreading into the adjacent northern translocation plot. The site also has an infestation of the high threat woody weed, Montpellier broom (*Genista monspessulana*).

Across the site, native grasses have been re-introduced and dominate the cover of understorey species (Figure 4). There is increased cover of exotic species, but still generally low and characterised by low risk species squirrel-tail fescue (*Vulpia bromoides*) at the greatest density with about 5 per cent cover. There are some scattered Chilean needle-grass tussocks and Montpellier broom germinating throughout the re-seeded area. It is recommended that regular spot-spraying occur over the re-seeded area to target these species.

Figure 4. Re-established wallaby-grasses within Receptor Site 3

It is recommended that the recent weed control is followed up to manage weeds within the two plots, including targeting the high threat exotic grasses, Yorkshire fog and sweet vernal grass, within at least 1 m of the translocated matted flax-lily.

It is recommended that regular weed control occur within the re-seeded area to maintain the high quality condition. Concentrated weed control should focus on the north east of the site, working from the higher quality areas within the centre of the site toward the eastern boundary.

No evidence of animal activity was observed within the site.

In summary, there are no recommendations for additional management; however the existing allocation of resources should target the following:

- High threat weeds present in the north east of the site, focussing on Chilean needle-grass and Montpellier broom, working from the centre of the site toward the eastern boundary;
- Regular weed control in the re-seeded areas;
- Weed control in the two translocated plots to control key exotic grasses, predominately sweet vernal grass, Yorkshire fog, paspalum and phalaris. This is particularly important within 1-2 m of the translocated matted flax-lily, and should also include other high treat weeds present, such as Chilean needle-grass. Note, where high biomass surrounds the plant, some over-spraying may occur, which is considered acceptable, as the matted flax-lily is often contained beneath the targeted weed and will likely benefit from space being created;

Site 4

Site 4 is located on VicTrack land to the south of the South Morang rail station car park (see Attachment 1). The site is managed by VicTrack. A 0.82 ha section of the site along the northern boundary was recently removed, under EPBC Act approval (EPBC 2016/7674), to facilitate the Mernda Rail Extension Project. The northern boundary included the disused Whittlesea rail line, which is a cutting through most of the site. Approximately 1.22 ha of the woodland remains, including the two plots comprising Receptor Site 4 along the southern boundary.

The two plots containing the translocated matted flax-lily are in good condition. The site contained only minimal exotic species, generally present as occasional clumps of exotic grasses, such as cocksfoot (*Dactylis glomerata*). However, while the revegetation within the plots has been successful in suppressing weeds, some native species used in the revegetation, common woodruff (*Asperula conferta*) and kidney weed (*Dichondra repens*), have become invasive and

are beginning to outcompete and suppress the translocated matted flax-lily. In particular, common woodruff is completely covering some of the plants, clearly affecting their health (Figure 5).

Figure 5. Common woodruff and kidney weed outcompeting matted flax-lily

Through continued management of the receptor site, minimal threats from exotic weed species are present. No evidence of vandalism or animal use of the site was observed.

Throughout the South Morang Grassy Eucalypt Woodland (SMGEW) increased levels of annual grasses, particularly Bromus spp. including greater brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), sweet vernal grass, and large quaking-grass (*Briza maxima*), by approximately 10 per cent since 2016 were observed. The cover of perennial grasses also increased, including cocksfoot (*Dactylis glomerata*), Texas needle-grass (*Nassella leucotricha*) and Chilean needle-grass.

Current management is considered sufficient to maintain the plots that comprise Receptor Site 4. Although it is recommended that during management of the site, where common woodruff and kidney weed are over-crowding the matted flax-lily plants, they be pulled back or trimmed to make space.

COMPLIANCE WITH EPBC ACT CONDITIONS

The following table (Table 3) describes how SMREP and PTV have demonstrated compliance with each of the EPBC approval conditions for the project (referral number EPBC 2010/5313).

Table 3 Compliance with EPBC Act conditions

Conditions of approval	Compliance with approval conditions
1. For the protection of the endangered matted flax-lily (Dianella amoena) and the critically endangered Grassy Eucalypt Woodland of the Victorian Volcanic Plan (GEWVVP) within the rail reserve, adjacent E6 road easement, McDonald Road reserve and South Morang Protection Zone (see Attachment 1) the Matters of National Environmental Significance, Document No. SMREP–APP–PW–ENV–010, Revision 0, South Morang Rail Extension Project (September 2010), must be implemented.	Implementation of this plan occurred during the construction phase of the project. Construction is now complete and there are no remaining actions that are required to be implemented.
2. For the protection of the endangered D. amoena the Translocation Plan for Matted Flax-lily, Document No. SMREP–REP–PW–ENV–002, Revision 1, South Morang Rail Extension Project (September 2010), must commence prior to the commencement of construction and be implemented for a period of at least 10 years.	The salvage effort to translocate affected matted flax-lily began on 30 September 2010 and was completed on 6 October 2010. Construction commenced on the 13 October 2010, following the salvage of matted flax-lily. This report reviews the state of plant and receptor site health and the management actions being implemented.

Conditions of approval	Compliance with approval conditions
3. Within 7 days of construction commencing the person taking the action must advise the Department in writing of the actual date of commencement.	An email was sent by Shelley Heron (SMREP Environment & Approvals Manager) to Narelle Sutherland (Department Assessment Officer) to confirm the commencement of construction on 15 October 2010.
4. If ownership and/or management of the protected land are to be transferred to another party, the person taking the actions must provide the Department with evidence that the other party has agreed to assume all the management responsibilities in accordance with the Translocation Plan and MNES Plan, and the conditions of this approval prior to any transfer occurring.	PTV has assumed the overall responsibility of the project approvals, with assistance from VicTrack, who have agreed to complete monitoring and reporting actions of all sites and management actions for Site 4. PTV and VicTrack have been assigned responsibility of actions within the current Translocation Plan, issued to the Department on 22 September 2014.
5. Within three months of every 12 month anniversary of the commencement of salvage of material for the translocation of D. amoena, the person taking the actions must submit to the Department a report addressing compliance with the conditions of this approval. Annual reports must be provided until the Minister is satisfied that the proponent has complied with all conditions of the approval.	This report demonstrates compliance with this condition.
6. If the person taking the action wishes to carry out any activity otherwise than in accordance with the MNES Plan or Translocation Plan referred to in condition 1 and 2 the person taking the action must submit for the Minister's approval a revised version of the MNES Plan or Translocation Plan. The varied activity shall not commence until the Minister has approved the varied MNES Plan or Translocation Plan in writing. If the Minister approves such a revised plan that plan must be implemented in place of the MNES Plan or Translocation Plan originally approved.	Revision 3 (May 2014) of the Translocation Plan was submitted to the Department on 22 September 2014.
7. If the Minister believes that it is necessary or desirable for the better protection of listed threatened species and communities (under sections 18 and 18A of the EPBC Act) to do so, the Minister may request that the person taking the action make specified revisions to the MNES Plan or Translocation Plan approved pursuant to condition 1 and 2 and submit the revised MNES Plan or Translocation Plan, for the Minister's approval. The person taking the action must comply with any such request. The revised approved MNES Plan or Translocation Plan must be implemented. Unless the Minister has approved the revised MNES Plan or Translocation Plan then the person taking the action must continue to implement the MNES Plan or Translocation Plan originally approved, referred to in condition 1 and 2.	No such request has been made.
8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the above conditions of approval, including measures taken to implement the MNES Plan or Translocation Plan required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Departments website. The results of audits may also be publicised through the general media.	Records on the health of the matted flax-lily have been compiled and reported on in this report.

CONCLUSION

Overall the current survival rate for the translocated matted flax-lily decreased from 97.9 per cent in 2015 to 96.6 per cent in 2016 and is currently at 95 per cent in 2017. This is still well above the required target survival rate of 85%.

The species is considered well suited to translocation and is well established at each of the four receptor sites. However, the survival rate has been decreasing steadily over the last two years. Essentially, this is attributable to the high biomass and weeds competing with translocated plants. This is particularly important for Receptor Sites 2 and 3, where the majority of dead plants are present.

The species health and survival is strongly linked to site management. For example, over the last two years there has been reappearance of plants previously recorded as dead. This is an example of how the species responds to site management, in particular creating space and light.

This has been noted in previous reports (KBR 2016), where the species has responded strongly to space created from methods such as weed spraying and controlled burns, even where the plants have been impacted in the short term. The thick rhizomes (Carter 2010), allow the species to respond quickly to disturbance.

It has been observed that where site management is minimal (for example in Receptor Site 2) and biomass from notable exotic grass species—sweet vernal grass, Yorkshire fog, phalaris and paspalum—is consistently high over consecutive years, the health and longevity of the plants is affected.

The key recommendation of this report, noted above in Sites 2 and 3, is to maintain the high survival rate for the species, the key exotic grass species, noted above, be targeted within close proximity (1-2 m diameter) to the translocated matted flax-lily. As there have been instances where individuals have recovered, these high threat grassy weed species should be targeted at all locations of translocated plants, including where the species cannot be observed.

Other general recommendations, noted above under each Site, include:

- Control of high threat weeds, including Chilean needle-grass, blackberry, Montpellier broom (Site 3) and thistles throughout the receptor sites;
- Identification and repair any fence damage and breach locations for rabbits, particularly in Sites 1 and 2. Under the translocation plan, this is the responsibility of Parks Victoria for Sites 1-3. Normally, the responsibility for Site 4, lay with VicTrack; however, while the Mernda project is under construction, the project has responsibility to manage the site;
- Biomass removal of vegetation outcompeting translocated matted flax-lily, including native species in Site 4 (to be done by hand or hand tool) and exotic species in Sites 2 and 3, which can be completed by overspray of herbicide if biomass over the translocated plant is high and herbicide contact on matted flax-lily will be low.

If you have any queries regarding the above please contact me at Adam.Rigg@kbr.com or on (03) 9828 5421.

Yours sincerely,

Adam Rigg
Senior Ecologist
Kellogg Brown & Root Pty Ltd (KBR)

Attachments

Attachment 1 - Receptor Site Maps

Receptor Site 1

South Morang Rail Extension Project

N

0 25 50 m

1:1,500 when printed at A3

DATUM GDA 1994, PROJECTION MGA ZONE 55

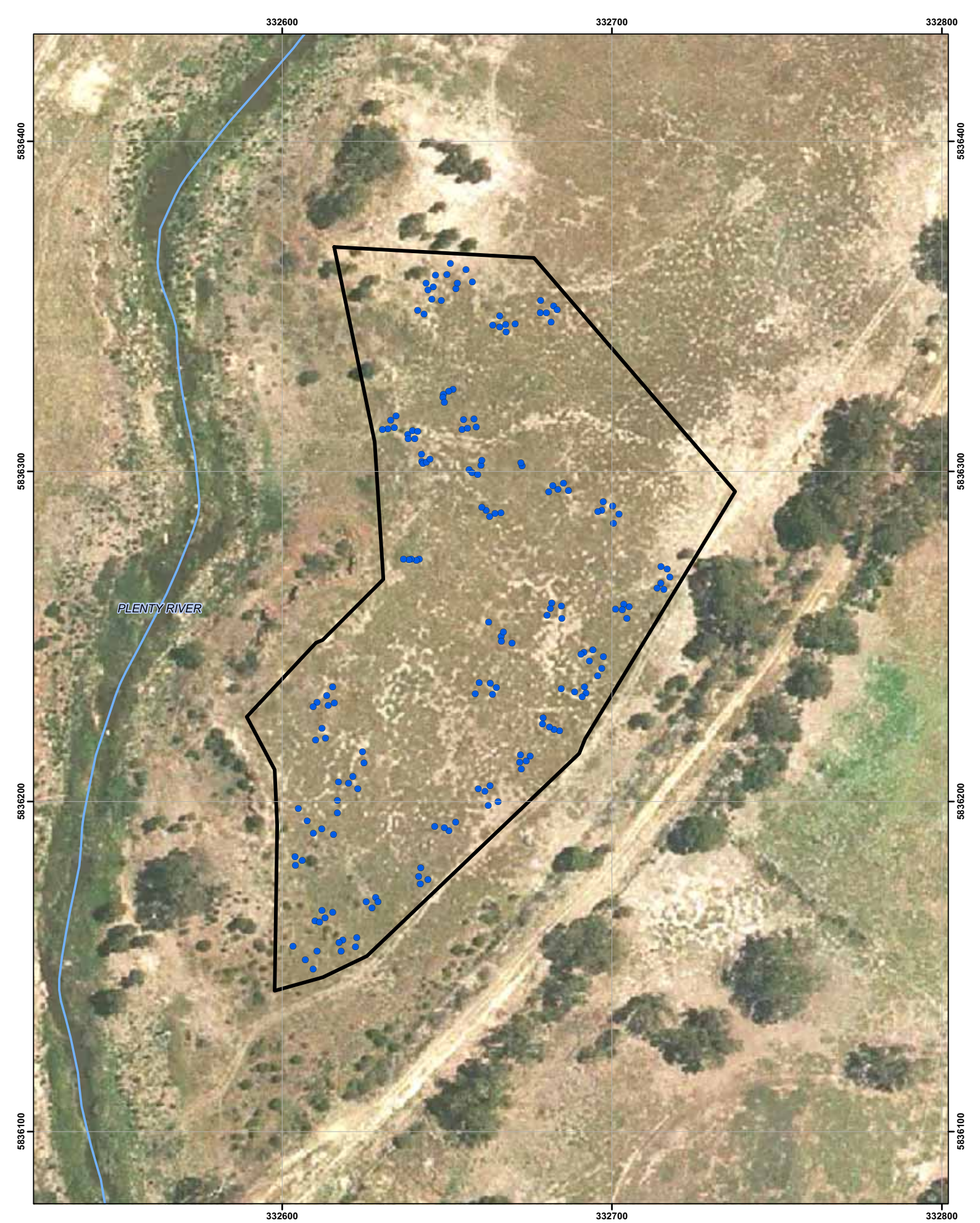
LEGEND

- Translocated Matted Flax-lily
- Known Matted Flax-lily (August 2010)
- Receptor Site
- Watercourse
- Property Boundary

CLIENT	South Morang Rail Extension Project
PROJECT ID	South Morang Rail Extension
CREATED BY	EM
LAST MODIFIED	EM 1/06/2012
DRG NO	MET005-G-MAP-004-A

REVISION

A



South Morang Rail Extension Project

N

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DATUM GDA 1994, PROJECTION MGA ZONE 55

LEGEND

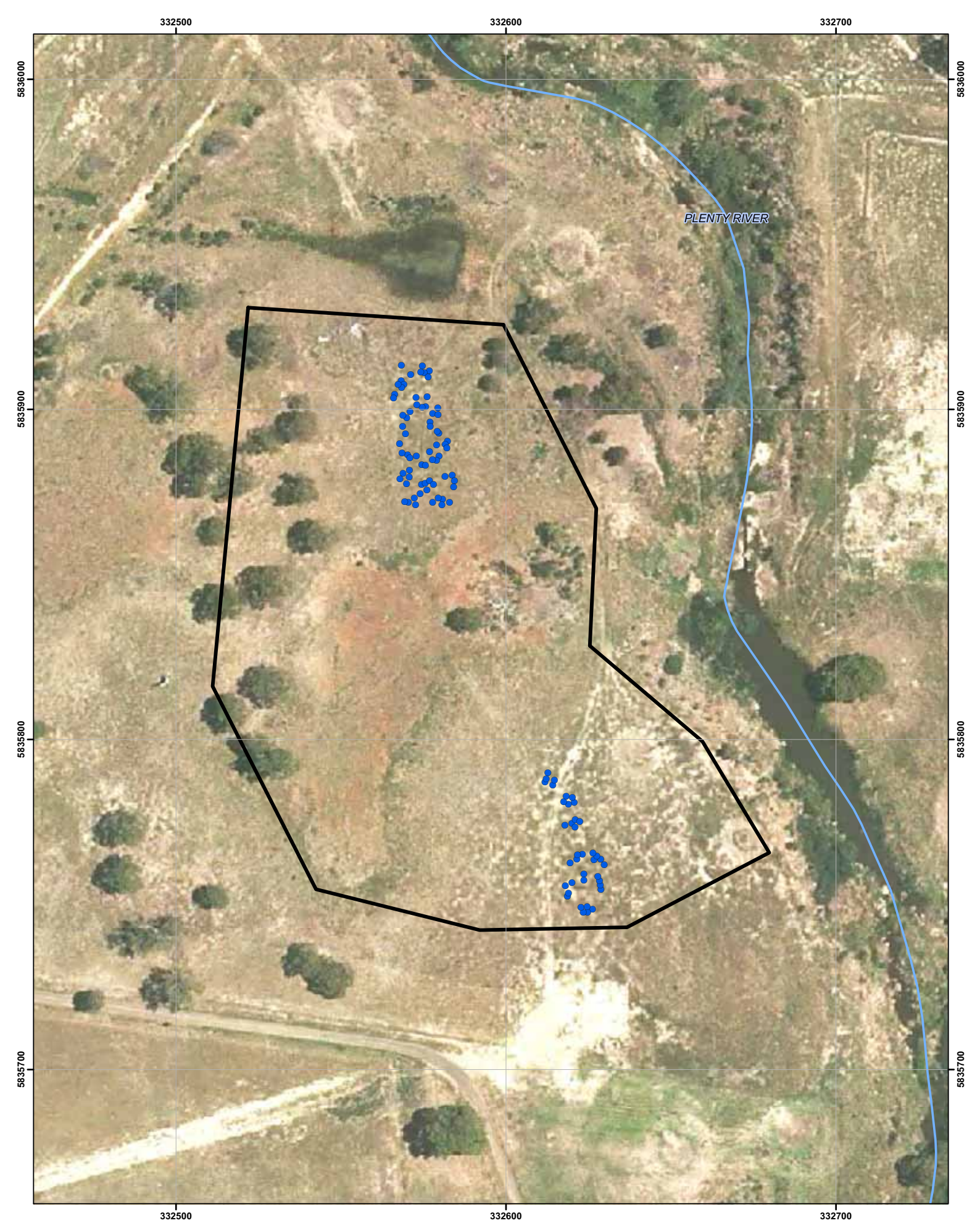
- Translocated Matted Flax-lily
- Known Matted Flax-lily (August 2010)
- Receptor Site
- Watercourse
- Property Boundary

Receptor Site 2

CLIENT	South Morang Rail Extension Project
PROJECT ID	South Morang Rail Extension
CREATED BY	EM
LAST MODIFIED	EM 1/06/2012
DRG NO	MET005-G-MAP-004-A

REVISION

A



South Morang Rail Extension Project

N

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DATUM GDA 1994, PROJECTION MGA ZONE 55

LEGEND

- Translocated Matted Flax-lily
- Known Matted Flax-lily (August 2010)
- Receptor Site
- Watercourse
- Property Boundary

Receptor Site 3

CLIENT	South Morang Rail Extension Project
PROJECT ID	South Morang Rail Extension
CREATED BY	EM
LAST MODIFIED	EM 1/06/2012
DRG NO	MET005-G-MAP-004-A

REVISION

A

SOUTH MORANG RAIL EXTENSION PROJECT

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metres
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LAST MODIFIED dxe24 JAN 2017

LEGEND

Matted Flax-lily

- Remnant
- To be translocated (Variation Dec. 2016)
- Translocated
- Rail Reserve
- Road Reserve: McDonalds Road
- GEWVVP: To be Removed (Variation Dec 2016)
- GEWVVP No-Go Zone (Variation Dec 2016)
- GEWVVP (To be Protected Sept 2010)
- EPBC Referral Area
- Receptor Site 4

South Morang Grassy Eucalypt Woodland Receptor Site 4

Client: South Morang Rail Extension Project

Map Document: (X:\Project Data\PRGM\GIS\MXD\Mernda\002_M02_South_Morang.mxd)

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