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Dear Renata

RESULTS OF YEAR 9 ANNUAL SOUTH MORANG GRASSY EUCALYPT WOODLAND MONITORING (SOUTH MORANG LOT 52)

Kellogg Brown & Root Pty Ltd (KBR) has been engaged by VicTrack to complete an annual condition assessment of the site known as the South Morang Grassy Eucalypt Woodland (SMGEW) located on Railway Lot 52.

The annual monitoring of the vegetation condition and response to management is a requirement of the *South Morang Grassy Eucalypt Woodland Management Plan* (SMREP 2017), management action 6.2. The plan aims to manage the significant ecological values present on the site, including the endangered matted flax-lily (*Dianella amoena*) and the critically endangered ecological community, Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP).

Purpose and objectives

Annual monitoring is required to assess the state of the vegetation community and any threats from weeds, biomass and pest animals (including kangaroos). A site inspection was conducted by two ecologists on 15 October 2019, to assess the status of the threats and the overall site condition.

The SMGEW contained no specific management actions after May 2019. As noted in the management plan, ongoing management of the site will be '*an approach agreed to by appropriate agencies and stakeholders*' (SMREP 2017). Recommendations within this letter provide potential management actions that could be adopted into the management of the site.

The SMGEW Plan was a 10-year management plan that commenced in October 2010 and is due for completion at May 2020, aligning with the *Translocation Plan for the Matted flax-lily* (SMREP 2013). This plan was prepared to detail and manage the translocation for the endangered matted flax-lily for the South Morang Rail Extension Project.

No further actions are stated beyond May 2020 and is considered to be complete as of this date. This monitoring report is considered to be the final report.

Mernda Rail Extension Project

A 0.82 ha section of the SMGEW was cleared for the Mernda Rail Extension Project (MREP). The project, delivered by the Level Crossing Removal Authority (LXRA), gained approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), EPBC 2016/7674.

An amendment to the approval for the South Morang Rail Extension Project (EPBC 2010/5313), which identified the 0.82 ha area of vegetation in the SMGEW as protected, was also required. Part of this approval process required the *South Morang Grassy Eucalypt Woodland Management Plan* (SMREP 2017) to be updated to reflect the changes to the site. The plan was updated to reflect the removal of woodland vegetation along the northern boundary.

Current site condition

There was a notable increase in cover and extent of annual exotic grasses over the site (Figure 1). Dense patches of species such as soft brome (Bromus *hordeaceus*), great brome (*Bromus diandrus*), annual rye-grass (*Lolium rigidum*), squirrel-tail grass (*Vulpia bromoides*) and large quaking-grass (*Briza maxima*).

These areas were interspersed with patches of high quality understorey, comprised of high cover and diversity of native species. These areas were generally dominated by kangaroo grass (*Themeda triandra*), with high densities of native forbs, including chocolate lily (*Arthropodium strictum*), milkmaids (*Burchardia umbellata*) and bulbine lily (*Bulbine bulbosa*).

Observations made within the site is that there was very low cover of the high threat exotic perennial grasses Chilean needle-grass (*Nassella neesiana*) and Texas needle-grass (*Nassella leucotricha*). Other perennial grasses, including phalaris (*Phalaris aquatica*) and cocksfoot (*Dactylis glomerata*), were also at low levels throughout the site, with greater concentrations present in the south east corner.

Generally, biomass was considered to be at moderate levels around the site. It is likely the biomass levels would significantly reduce once annual exotic grasses dieback over the summer period. It was noted that biomass levels are greatest along the southern boundary, including within the receptor site for matted flax-lily.

Figure 1. Area of reduced biomass and treated grasses.

Grassy and herbaceous weeds

The cover of grassy and herbaceous weeds has increased since 2018. The overall cover of grassy and herbaceous weeds is considered to be approximately 55 per cent across the site.

This is primarily comprised of annual grass weeds, mainly annual rye-grass, but also including soft brome, great brome, squirrel-tail grass and large quaking-grass. It appears as though annual exotic grasses have established into the spaces created through targeted weed control of perennial exotic grasses.

Perennial grasses on site, such as cocksfoot, Yorkshire fog (*Holcus lanatus*), Chilean needle-grass, Texas needle-grass and phalaris, have been specifically targeted for control over previous year's management and these species were considered to be at very low levels, generally around 5 per cent cover across the site. Phalaris and cocksfoot comprised the greatest cover of perennial exotic grasses, located mostly along the southern boundary of the site, where biomass is generally greater.

Herbaceous weeds comprise the lowest cover of these weeds. Cover is at a similar level to previous monitoring years (KBR 2017, 2018), with approximately 3 to 4 per cent cover presently. The majority of these species are low impact species, however, the high threat species, Paterson's curse (*Echium plantagineum*) was noted throughout the site, but this was generally only present as scattered individuals. Any future management completed at this site should target control of high threat herbaceous weeds, particularly Paterson's curse, to maintain low levels.

Figure 2. High cover of annual grass weeds.

Woody weeds

The cover of woody weed species remains low (less than 1 per cent cover) with a few individual sweet briar (*Rosa rubiginosa*) observed across the site. Ongoing management completed on the site should also include spraying of regenerating woody weeds and removal of larger individuals in order to maintain this low cover.

Biomass

As noted above, significant effort has been applied on the site to manage biomass, particularly of high threat perennial grasses. Currently, the level of biomass is not threatening the community although, there is a notable increase in proportion of annual grass weeds.

It is expected that by December, the majority of the annual weeds would have died-back for the year, reducing the apparent standing biomass. However, continual build-up of senescing grass material may contribute to suppressing gaps for native forbs, including matted flax-lily, plus contribute to the fuel layer within the site, which presents a fire risk to adjacent landholders.

High biomass levels of exotic grasses are still present in the south eastern boundary of the site, although it is isolated to small areas.

Biomass can quickly develop, particularly with some rainfall, as noted by the increase in annual exotic grass cover. Future management of the site will need to consider biomass level, notably to comply with local bushfire requirements. Where management of biomass occurs, the management is recommended to targeting large patches of exotic grasses (throughout the site) to assist in maintaining the condition of the community.

Pest and Native Animals

Rabbit activity was observed in the site. One breach, where the chicken wire was detached from the boundary fence, was noted in the eastern boundary fence at the same location observed in 2018 (KBR 2018). Rabbits appear to be actively entering the site from this point. Rabbits are likely to keep accessing the site while gaps are present.

Figure 3. Fence location where potential breaches by rabbits can occur

No kangaroo activity or activity by other animals and grazers was observed on the site.

No damage was observed to the translocated matted flax-lilies, and no significant grazing or damage was observed within the SMGEW. Therefore, the current level of grazing is not currently impacting the condition of the woodland.

Adjacent Land Use and Fence Condition

As noted in previous reports (KBR 2017, KBR 2018), an area, between the newly constructed rail fence and the boundary of the approved impact area of the woodland, has been disturbed by the MREP. Currently, along the disturbed area is sparse clumps of rye-grass. This area is likely to be re-colonised by weed species, including annual grass and herbaceous species, such as thistles and rye-grass.

Rubbish is at very low levels throughout the site, with only incidental rubbish present, generally close to where passers-by have the opportunity to litter into the reserve, including along McDonalds Road and along the southern boundary adjacent to car parks. This is a minor management issue at present.

Existing Matted Flax-lily

Observations on the population of existing matted flax-lily within the site over the previous years (KBR 2018) noted several additional matted flax-lily were observed within the site, compare to monitoring during 2017.

Although no official count is completed during the monitoring, the population appears stable, with numbers during the current monitoring apparently similar to those observed in 2017, with numerous matted flax-lily scattered through the site.

Conclusions

The result of previous management completed on the site was mostly apparent in the very low cover and extent of key target species Chilean needle-grass and Texas needle-grass. Other high threat weeds, the perennial exotic grasses, phalaris and cocksfoot, were also a low cover, with greater abundances within the south east corner of the site.

However, following completion of the SMGEW Plan actions, there is potential for these high risk weeds to increase in cover and impact the presence of the nationally significant matted flax-lily population and the condition of the GEWVVP. It is recommended that regular weed spraying occur for these high threat weeds to maintain the low levels currently present.

Over the last two years, the cover of annual grasses is observed to be increasing to be the dominant understorey group. Although generally not considered to be high threat, the increase in annual grasses has the potential to displace native annual herbs and forbs that contribute to the community meeting defining characteristics as a GEWVVP (TSSC 2009, DSEWPAC 2011). This is generally achieved by occupying space between perennial grasses, outcompeting native species that generally occupy these inter-tussock spaces, including the matted flax-lily.

Additionally, as these species 'die-back' each year following seeding, there is potential for a gradual build up in dead plant matter, particularly if there is minimal grazing occurring. This has potential to increase the fuel load on site and therefore increased fire risk to the site and adjacent land, including the rail reserve and nearby power station.

Extensive areas of annual weeds could be targeted for physical removal of weed seed where managing biomass control for fuel management, generally through mowing or slashing. This is recommended to occur during late September/early October when species such as rye-grass, large quaking-grass and bromes are seeding. Also, ideally this would be completed by practitioners familiar with native and exotic grasses, to complete this effectively. The practitioners would also need to remove this seed and dispose appropriately off-site.

These actions and future management should occur in conjunction with the future management of the translocated matted flax-lily plants present within the receptor site contained on the south side of the site.

Recommendations

From the above conclusions the following recommendations are made to maintain effective site management:

- Complete regular weed control within the site targeting high threat weed species to assist in maintaining low biomass, particularly the high threat perennial grasses; Chilean needle-grass, Texas needle-grass, cocksfoot and phalaris;
- When completing weed control, spray any regenerating woody weeds;
- Ongoing management should include any recommendations for future management of the translocated matted flax-lily;
- Consider use of mow-and-catch for high density areas of high threat annual grasses to remove weed seed during late September/early October. Additional biomass removal may be required to reduce fuel loads. This should target areas with high exotic grass cover.

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

References

Department of Sustainability, Environment, Water, Population and Communities (DSEWPAC), 2011. *Nationally Threatened Ecological Communities of the Victorian Volcanic Plain: Natural Temperate Grassland & Grassy Eucalypt Woodland*. Department of Sustainability, Environment, Water, Population and Communities, Canberra.

Kellogg Brown & Root Pty Ltd (KBR), 2017. Results of Year 7 Annual South Morang Grassy Eucalypt Woodland Monitoring. Prepared by KBR for VicTrack, Melbourne.

Kellogg Brown & Root Pty Ltd (KBR), 2018. Results of Year 8 Annual South Morang Grassy Eucalypt Woodland Monitoring. Prepared by KBR for VicTrack, Melbourne.

South Morang Rail Extension Project (SMREP), 2017. *South Morang Grassy Eucalypt Woodland Management Plan, SMREP-REP-PW-ENV-008 Revision 1*. Prepared by the AECOM-GHD Joint Venture for the Level Crossing Removal Authority, Melbourne.

South Morang Rail Extension Project (SMREP), 2014. *Translocation Plan for Matted Flax-lily*, SMREP-REP-PW-ENV-002 Revision 3.

Threatened Species Scientific Committee (2009). *Commonwealth Listing Advice on Grassy Eucalypt Woodland of the Victorian Volcanic Plain*. Department of the Environment, Water, Heritage and the Arts, Canberra.