

Woomargama Station – native grass establishment project

Project brief:

At the request of Clare Cannon (property owner) I visited Woomargama Station on 24th July 2017 to assess the feasibility of establishing native grasses at the hill site adjacent to the main property entrance and Mountain Creek.

The aims of the proposed planting are:

1. To re-introduce native groundcover (particularly native grass species) to the site; and,
2. To create a visual impact potentially seen from the property entrance.

I was shown the site by Nick Wragge and conducted an assessment to identify and broadly map areas of native plants and weeds, identify issues that may influence the success of the proposed works, and to provide recommendations on revegetation methods.

Site description:

- The site surveyed is approximately 3.5 hectares of the south / south-west facing slope, on the northern side of Mountain Creek, adjacent to the main property entrance. The area surveyed was upslope from the track.
- The site has an elevation of between 325 – 370m above sea level.
- The vegetation on the site could be described as modified Box gum woodland with a history of grazing, and the site is now lightly timbered with an absence of native shrub species.
- Much of the groundcover already contains native grasses – e.g. Plume grass, Wallaby grass, Weeping Grass. At the time of the site assessment the groundcover was grazed low.

Table 1 – Flora species observed during the site survey.

Native trees and shrubs	Native groundcover	Weeds
<ul style="list-style-type: none"> • Yellow box (<i>Eucalyptus melliodora</i>) • White box (<i>Eucalyptus albens</i>) • Red Stringybark (<i>Eucalyptus machrorhyncha</i>) 	<ul style="list-style-type: none"> • Plume Grass • Wallaby grasses (<i>Austrodanthonia spp.</i>) • Tall sedge (<i>Carex apressa</i>) • Rush (<i>Juncus sp.</i>) 	<ul style="list-style-type: none"> • Clover – throughout, not a major issue. • St John’s Wort – patchy, not a major issue. • Onion grass - abundant throughout. • Patterson's Curse – low levels, patchy. • Fog grass – occurs at stock camps (e.g. under dead trees, top of ridge). • Phalaris - mostly closer to creek, south facing slopes. Major issue below the track towards creek. • Unknown – refer to photo, abundant throughout – potential issue.

Map of the area surveyed:



Site photos:

Clockwise from top left to bottom left – 1). site facing downslope south towards property entrance, 2). site facing up slope north from the track 3). Dead tree with Tall Sedge (*Carex appressa*) at base in middle of surveyed site – an example of what the grass revegetation might look like 4). Wallaby Grass (*Austrodanthonia* sp.) grazed, as seen throughout site 5). Unidentified weed species throughout site.



Potential options for revegetation of groundcover (e.g. grasses):

Option	Summary	Methodology /Timing	Pros / Cons	Approximate costs (excl. gst)
1	No revegetation	This is a 'bush regeneration' approach, controlling weeds and grazing to encourage growth and reseeding of the native grasses found already on site. Weed control – includes spot-spraying of herbicide and some hand weeding. Seeding native grasses occurs is mostly in summer – aim to ensure grass is not over-grazed and weed competition is reduced. Timing and method of weed control will vary according to the species being targeted.	Pros: <ul style="list-style-type: none"> Cheapest option. Utilises the native grasses already present and adapted to the site conditions. Cons: <ul style="list-style-type: none"> This is unlikely to give the desired visual impact from a distance (e.g. Weeping Grass). 	Revegetation - \$0 Weed control / Bush regeneration – this can be undertaken in house with minimal training / guidance. TOTAL = \$0 (Note: does not include cost of in-house labour and external advice)
2	Revegetate using nursery-grown seedlings.	Site preparation: <ul style="list-style-type: none"> Weed control starting 6-12 months prior to planting. Avoid ripping in this instance. Planting: <ul style="list-style-type: none"> Plants grown in hikos (trays of 40). Purchase from Jayfields Nursery, Holbrook. Planting in July/August (ordered 6 months earlier). Planted densely in small circular areas. Consider using guards if exclusion fencing is not used – due to stock / kangaroo grazing potential. 	Pros: <ul style="list-style-type: none"> Quicker visual impact (compared to seeding). Cons: <ul style="list-style-type: none"> Not sourced from property. Seedlings are more susceptible to grazing initially which could impact success rates. 	Plants – 500 x \$1 /seedling = \$500 Tree guards or exclusion fencing - \$500 Planting – \$1200 TOTAL = \$2,200 (Note: does not include labour for exclusion fencing for plots – in house?)
3	Revegetate using seed purchased from a supplier.	Purchase seed: <ul style="list-style-type: none"> The main seed supplier locally is Murray Local Land Services (MLLS). Site preparation: <ul style="list-style-type: none"> Weed control (6-12 months before seeding) Scalp topsoil to depth of up to 100mm using 'rake hoe'. Seeding: <ul style="list-style-type: none"> Hand broadcast seed. August / September. 	Pros: <ul style="list-style-type: none"> Seed sourced from catchment. Cons: <ul style="list-style-type: none"> MLLS only supply on contract (will collect for an order). Don't have seed in stock (the earliest collection will be summer 2017/18). 	Seed – 1kg (\$630/kg) cleaned seed. Site prep and seeding – 2 x \$600 = \$1,200 TOTAL = \$1,830
4	Revegetate using seed collected on the property	Seed collection: <ul style="list-style-type: none"> By contractor / WS staff - Summer (December). Seed stored on property. Site preparation: <ul style="list-style-type: none"> Weed control (6-12 months before seeding). Seeding: <ul style="list-style-type: none"> Scalp topsoil to depth of up to 100mm using 'rake hoe' or similar. Hand broadcast seed. August / September. 	Pros: <ul style="list-style-type: none"> Seed sourced from property and best adapted to site conditions. Cons: <ul style="list-style-type: none"> Earliest collection would be summer 2017/18, with seeding in August 2018. 	Seed collection - \$1,200 Site prep and seeding – 2 x \$600 = \$1,200 TOTAL = \$2,400

Recommendations:

Regardless of which option above is pursued, the approach with native grasses that I recommend is:

- **Minimise impacts to the native grasses and other native plants already occurring on the site.**

The site already contains good cover of native grasses – Weeping Grass, Wallaby Grass and Plume Grass. With grazing reduced on the site these species may still not achieve the desired visual impact from a distance. Re-introducing species that might (e.g. Kangaroo Grass, Common Tussock Grass, Tall Sedge) should be done in a way that doesn't remove existing native species pasture. For example, broad spraying of glyphosate to prepare the site is a common mistake and should be avoided.

- **Concentrate effort in smaller clusters (e.g. circular with a diameter of 5 metres) throughout the site.**

This approach involves planting grasses close together in dense clusters rather than spread out. Alternatively, scalping smaller areas and hand broadcasting seed onto the scalped areas. This helps achieve the visual impact of a swathe of native grasses, and helps with maintenance, particularly weed control. Within 12 months the planted seedling will not only be fully established, they will also have begun producing and dropping seed. Careful weed control at key times can help facilitate the natural expansion of these areas, particularly down slope of the original planted area. This approach could be applied to the base of the handful of isolated dead trees dotted throughout the site (refer to photos for an examples). This revegetation approach could help enhance the visual appeal of dead trees.

- **Start with only a few key species (Kangaroo Grass, Common Tussock Grass, Tall Sedge) that are relatively easy to establish and are hardy.**

Additional species can be added at later stages if required.

- **Planted seedlings are likely to require initial protection via guards or exclusion fencing, whereas seeding generally does not.**

Seedlings are highly visible and palatable to stock and kangaroos, and susceptible to being damaged due to their poor root systems at the after time of planting. Conversely, germinants from seeding are less obvious and by the time shoots appear the root systems are already becoming established. The plants are less likely to be pulled from the soil.

- **Avoid targeting areas that have Phalaris, such as downslope of the track.**

Phalaris will outcompete the native grasses being planted and will undermine the success of the plantings. Avoid areas with Phalaris, unless prepared to extend the period of site preparation to enable sufficient weed control effort.