Natural Temperate Grassland and Pink-Tailed Worm Lizard Restoration Works

Scrape and Sow Monitoring

Cumulative report as at December 2022

Revision History			
Revision #	Date	Prepared by	Reviewed by
Draft v1.1	13.12.2022	Rachel Eland	John Fitz Gerald
Draft v1.2	08.02.2023	Rachel Eland	Violet Marriott
FINAL	07.03.2023	Rachel Eland	John Fitz Gerald

Ginninderry Conservation Trust

Contents

1. Executive Summary

This report provides an analysis of native and exotic species growth on the Scrape and Sow site, undertaken to restore Natural Temperate Grasslands and Pink-tailed Worm Lizard habitat in the Ginninderry Conservation Corridor. The study includes a control plot external to the Scrape and Sow monitored to determine the previous species that dominated the Scrape and Sow and to identify whether the native seeds are spreading from the Scrape and Sow into the surrounding paddocks.

Three surveying methods were undertaken, including:

- Transects along the 5 jute strips and open space between jute in the Scrape and Sow;
- Braun-Blanquet scores on randomly located circular plots of area 400 sq m in the Scrape and Sow and;
- A 20m x 20m control plot outside the Scrape and Sow with the top 5 species identified.

The transect results demonstrate that the open spaces have had a 5% increase in the rate of growth and the jute strips have had a 10% increase in the rate of growth compared to Oct 2021. Along both the open spaces and jute strips there has been a 53% increase in the overall number of exotics species both annual and perennial.

The circular plot surveys have identified new native species that were not sown, and an increase in native species that were sown. As at December 2022, Plot 2 demonstrated an increase in sown species establishment with a success rate of 83%. Plot 3 also demonstrated an 83% success rate of sown species establishment which is a significant increase from 2021. It was disappointing that the invasive African Lovegrass was recorded in significant abundance for the first time in the Scrape and Sow. Control action is required.

2. Scope

Annual monitoring by Friends of Grassland & the Trust will be undertaken in Spring to ensure the sown native grasses and forbs are growing and to monitor the abundance of native and exotic plants on the site.

3. Monitoring Methods

Transects were set up to monitor surface character (e.g., bare ground, native grass, etc) throughout the scrape. In addition, circular plots were marked for detailed surveying of all plant species growing.

Transects: The site has 6 jute strips. Transects were placed (a) along the 5 jute strips close to the top of the site and (b) in the open space between these jute strips. Transects were placed with start and end over 1 metre in from both sides of the site and 35 metres long for the upper 3 transects and 30 metres long for 2 transects where the scape narrows at its lower end. This

method was used to help determine whether the placement of jute enhanced grassland establishment (in addition to reducing run-off).

A tape measure was laid along each transect. At each metre a stiff wire was placed on the ground and plants that touched the wire were counted and recorded. If the wire probe hit jute at ground level this was recorded and then counted a second time for nearest other category beside the jute. In the transects between jute strips, if rock/brick was hit, a second count was taken either at the right or left edge of each, whichever was closest. Distinction was drawn between hits at ground level and hits on the wire probe at any point above ground (i.e. suspended). Finally, vegetation heights (excluding seed heads) were to be estimated for jute and open space transects.

Braun-Blanquet Scores: Plot centre coordinates were randomly generated for the first monitoring in Nov 2020 for centres of 11.3 metre circular plots each 400 sq metres in area. These centres have been retained for monitoring since 2021. Plots were monitored at the following centres:

Plot 2: 25.6, 36.7
Plot 3: 14.9, 57.4

*Note that these centre coordinates are in metres with distance from the SE corner (beside gate) across slope first, distance down slope second

All plant species identified were recorded separately including numbers of individuals counted in each plot. Using this, each species was assigned a BB cover/abundance score shown below. A list of species sown as seed was provided.

BB cover/abundance scores	
BB Score Category	Score
1	< 5 % cover and solitary (<4 individuals)
2	< 5 % cover and few (4-15 individuals)
3	< 5 % cover and numerous (>15 individuals)
4	5 % - <25 % cover
5	25 % - <50 % cover
6	50 % - <75 % cover
7	75 or greater % cover

External Control Plot: A 20m x 20m plot was measured outside the Scrape and Sow site and the 5 most abundant species were identified. All other species observed were also recorded.

4. Results

4.1. Results from November-December 2022 Monitoring

Open space: Along the transect lines in the open spaces there was 108 counts of bare ground (including sand/loam), 2 counts of rock, 35 counts on fine litter, 2 counts on *Themeda triandra*, 11 counts of landing directly on native grasses, 11 counts on annual introduced grass and forbs and 1 count on perennial introduced grasses/ forbs at ground level. The suspended-plant-matter counting identified 7 counts of logs/ sticks, 2 counts of *Themeda triandra,* 90 counts of native grasses and 6 counts of native forbs. Exotics were also identified in the suspended-plant-matter including; 80 counts of annual introduced grasses and forbs and 59 counts of perennial introduced grasses and forbs. Across ground and suspended-plant-matter counts there was total of 111 native plant hits. Across ground and suspended-plant-matter counts there was a total of 143 introduced plant hits.

Jute: Along the transect lines on the jute there was 102 counts of bare ground, 30 counts of touching the jute fabric, 34 counts of fine litter, 2 counts of logs/sticks, 2 counts of *Themeda triandra*, 14 counts of landing directly on native grasses, 1 count of landing on annual exotic and 4 counts on perennial introduced grasses/ forbs at ground level. The suspended-plant-matter count identified 95 hits of native grass (besides *Themeda*) and 16 of native forbs. Across ground and suspended-plant-matter counts there was a total of 131 native plant hits. The counting also identified 65 hits on perennial introduced grasses and forbs, 56 hits on annual exotics and 9 hits on logs/sticks (not easily dispersed by rainfall). Across ground and suspended-plant-matter counts there was total of 126 introduced plant hits.

Braun-Blanquet Scores: Circular plots 2 and 3 highlighted that there was good growth for many of the sown species and also several native species that weren't sown.

In Plot 2, of the 24 species sown, 4 were not present at the time of monitoring. The survey identified 9 native species that were not sown. Overall, 29 individual native species were found including 20 sown and 9 not sown. The survey also identified 29 exotic species, with 18 of the species scoring a BB score of 3. See Appendix 4 & 5 for full results.

In Plot 3, of the 24 species sown, 4 were not present at the time of monitoring. The survey identified 9 native species that were not sown. Overall, 29 individual native species were found including 20 sown and 9 not sown. The survey also identified 29 exotic species; again 18 with a BB score of 3. See Appendix 6 & 7 for full results.

External Control Plot:

The external plot in an area adjacent to the Scrape and Sow site was monitored. The plot measures 20m x 20m and the 5 most abundant species were recorded. All other species found were also recorded. The survey identified *Avena barbata* to be the most abundant in the plot. No natives that were found were considered to be abundant. See Appendix 2 for results.

Discussion

Transects:

The transect results demonstrate that the open spaces have had a 5% increase in the rate of growth and the jute strips have had a 10% increase in the rate of native and exotic growth compared to Oct 2021. The survey results have identified that *Themeda triandra* is present along both the open spaces and jute strips which is an increase from all previous years. Along both the open spaces and jute strips there has been a 53% increase in the overall number of both annual and perennial exotic species observed. The transects have also demonstrated that there has been significant increase in the amount of fine litter and sticks/ bark present in the Scrape and Sow with a 20% increase along both open space and jute. The exotic species only slightly outnumber the native species across open space and jute transects, which has undesirably increased from October 2021.

Circular Plots:

Plot 2 is demonstrating an increase in native species with 13 of the 29 individual native species identified having a BB score of 3. There has also been an increase in the presence of sown native species within the plot. 3 native species were recorded in the plot for the first time, all of which were not sown. In 2021, 2 *Rytidosperma* species were recorded to have a BB score of 4. These have decreased to a BB score of 3. This may be a result of the wet conditions on the site creating soil saturation or due to an increase in the biomass overall. *Themeda triandra* has increased across the plot and has a BB score of 3. Interestingly, 1 native species *Vittadinia gracilis* which had a BB score of 3 in 2021 was not recorded in 2022 monitoring.

The number of exotic species observed is equal to the natives in Plot 2. 18 of the 29 species identified during the 2022 monitoring have a BB score of 3. 3 new exotics were identified within Plot 2, one of which is a weed of national significance *Eragrostis curvula* or African lovegrass. This highly invasive species has a BB score of 3 and will require regular management to control. Furthermore, there has been an incursion of new *Trifolium* species, 5 of which have a BB score of 3.

Plot 3 is demonstrating an increase in native species with 16 of the 29 individual native species identified having a BB score of 3. Interesting Plot 3 has had an increase in the sown species present compared to 2021 with 6 of them being identified for the first time during 2022 monitoring. *Themeda triandra* has increased significantly across the plot and has a BB score of 3. *Themeda triandra* was not recorded on the plot during 2021. 1 native species that was not sown was recorded during the 2022 monitoring for the first time. Excitingly it is an orchid *Microtis sp*.

The number of exotic species found is equal to that of natives in Plot 3. Of the 29 exotic species identified, 18 have a BB score of 3. 5 new exotics were identified within Plot 3, one of which is a weed of national significance *Eragrostis curvula* or African lovegrass. This species has a BB score of 3 and will require regular management to control. *Trifolium* species are less of a problem in Plot 3; only 3 of them have a BB score of 3.

External Control Plot:

The external plot demonstrated a highly exotic pasture, which was not unexpected. All of the 5 most-abundant species identified were exotic. The survey identified that there has been about a 60% increase in the individual exotic species found in the external plot compared to 2021. There has also been about 45% increase of native species compared to 2021. Further monitoring and weed management will be required to prevent the exotic species from the surrounding paddock taking over the Scrape and Sow site.

Other sightings:

Excitingly, during transect monitoring a Perunga Grasshopper (*Perunga ochracea*) which is an endangered grasshopper that lives in Natural Temperate Grassland was seen on the site (this has been posted on Canberra Nature Map). Furthermore, an Echidna was found on the site flipping rocks and eating ants.

4.2. Results from October 2021 Monitoring

Open space: Along the transect lines in the open spaces there was 129 counts of bare ground (including sand/loam) and 5 counts of rock, 5 counts of landing directly on native grasses, 1 count of a native forb and 11 counts on perennial introduced grasses/ forbs at ground level. The suspended-plant-matter counting identified 105 counts on native grass, 15 counts of native forbs and 27 counts of fine litter (unattached and easily dispersed by rainfall). Exotics were also identified in the suspended-plant-matter including; 24 annual grasses and fords and 41 perennial introduced grasses. Across ground and suspended-plant-matter counts there was total of 126 native plant hits. Across ground and suspended-plant-matter counts there was a total of 76 introduced plant hits.

Jute: Along the transect lines on the jute there was 129 counts of bare ground, 9 counts of touching the jute fabric, 8 counts of landing directly on native grasses, 2 counts of native forbs, 1 count of landing on annual exotic and 13 counts on perennial introduced grasses/ forbs at ground level. The suspended-plant-matter count identified 105 hits on native grass (besides *Themeda*) and 16 on native forbs. Across ground and suspended-plant-matter counts there was a total of 131 native plant hits. The counting also identified 43 hits on perennial introduced grasses and forbs, 30 hits on annual exotics and 18 hits on fine litter (unattached, easily dispersed by rainfall). Across ground and suspended-plant-matter counts there was total of 87 introduced plant hits.

Braun-Blanquet Scores: Circular plots 2 and 3 highlighted that there was good growth for many of the sown species and also several native species that weren't sown.

In Plot 2, of the 24 species sown, 6 were not present at the time of monitoring. The survey identified 7 native species that were not sown. Overall, 25 individual native species were

recorded including 18 sown and 7 not sown. The survey also identified 26 exotic species, with 17 of the species scoring a BB score of 3. See Appendix 4 & 5 for full results.

In Plot 3, of the 24 species sown, 10 were not present at the time of monitoring. The survey identified 9 native species that were not sown. Overall, 23 individual native species were found including 14 sown and 9 not sown. The survey also identified 24 exotic species, with St John's Wort (*Hypericum perforatum*) having the greatest abundance. See Appendix 6 & 7 for full results.

External Control Plot:

An external plot was added to the monitoring schedule in an area adjacent to the scrape and sow site to track baseline conditions. The plot measured 20m x 20m and the 5 most abundant species were recorded. The survey identified *Trifolium subterraneum* and *Avena barbata* to be equally the most abundant in the plot. *Carex inversa* was the only native identified to be abundant in the plot.

Discussion

Transects:

The transects have identified that there has been a 10.5% increase in growth along the jute strips and 16% increase in growth along the open spaces from April 2021. The transect results demonstrate that the jute hasn't significantly biased the growth of the sown plants, with the transects on and off the jute having similar totals of native plant hits. Interestingly there has been a reasonable decrease of exotic species along the open spaces compared to April 2021 and a slight increase of exotics along the jute strips. This reduction of exotics along the open spaces is mostly likely a result of weed management activities and an increase in native recruitment. The native species continue to outnumber the exotic species across open space and jute transects.

Circular Plots:

Plot 2 is demonstrating an increase in native species with 14 individual native species having a BB score of 3 and 2 with a BB score of 4. 4 new sown species were also identified in plot 2. The two species which are demonstrating the best growth are two *Rytidosperma* species. Overall, the exotics still outnumber the natives in plot 2, with 17 of the 26 species identified having a BB score of 3. Two species that were identified to be dominate in plot 2 during November 2020, *Conzya sp*. and *Hypericum perforatum,* have decreased from a BB score of 4 to 3. This is most likely a result of weed management activities and needs to be continuously managed. 9 of the 12 native species that were not sown and identified in November 2020, were not found during monitoring in October 2021. This could be a result of the sown native species becoming more prevalent.

Plot 3 is demonstrating an increase in native species with 14 individual species having a BB score of 3 and 1 with a BB score of 4. In November 2020 there was only 9 species with a BB score of 3. *Rytidosperma sp*. is the most prevalent species identified in plot 3. 3 of the 8 native species not sown and identified in November 2020, were not found during October 2021 surveys. Interesting there has been a significant decrease in the exotic species, with 13 individual exotic species

having a BB score of 3 and 1 with a score of 4. In November 2020, 20 individual exotic species had a BB score of 3.

External Control Plot:

The external plot demonstrated a highly exotic pasture, which was not unexpected. 4 out of 5 of the abundant species identified were exotic. Further monitoring and weed management needs to be undertaken to prevent the exotic species from taking over the Scrape and Sow site.

5. Appendix

Appendix 1: Transect results – 11 November 2022

BETWEEN JUTE STRIPS/ OPEN SPACES ON GROUND	Raw data Nov 2022	Recalculated to 100 observations
Mosses, lichens	0	0
Bare ground (incl loose sand/ loam) or algae	108	67.5
Rock or tile	2	1.3
Fine litter	35	21.9
Jute fabric in scrape	0	0
Logs, sticks, bark	0	0
Themeda	2	1.3
Native grasses not Themeda	11	6.9
Other native species (forbs, ferns, sedges, lilies, orchids etc)	0	0
Annual introduced grasses and forbs	3	1.9
Perennial introduced grasses, forbs	1	0.6
SUSPENDED		
Fine litter	0	0
Logs, sticks, bark	7	4.4
Themeda	2	1.3
Native grasses not Themeda	90	56.3
Other native species (forbs, ferns, sedges, lilies, orchids etc)	6	3.8
Annual introduced grasses and forbs	80	50
Perennial introduced grasses, forbs	59	36.9
Number of observations	*160*	*100*
ON JUTE STRIPS ON GROUND	**Raw data Nov 2022**	**Recalculated to 100 observations**
Mosses, lichens	0	0
Bare ground (incl loose sand/ loam) or algae	102	64.2
Rock or tile	0	0
Fine litter	34	21.4
Jute fabric in scrape	30	18.9
Logs, sticks, bark	2	1.3
Themeda	2	1.3
Native grasses not Themeda	14	8.8
Other native species (forbs, ferns, sedges, lilies, orchids etc)	0	0
Annual introduced grasses and forbs	1	0.6
Perennial introduced grasses, forbs	4	2.5
SUSPENDED		
Fine litter	0	0
Logs, sticks, bark	9	5.7
Themeda	4	2.5
Native grasses not Themeda	95	59.7
Other native species (forbs, ferns, sedges, lilies, orchids etc)	16	10.1
Annual introduced grasses and forbs	56	35.2
Perennial introduced grasses, forbs	65	40.9
Number of observations	*159*	*100*

Appendix 2: External Control Plot results – November-December

SCRAPE & SOW MONITORING EXTERNAL CONTROL PLOT DATE: 5/12/2022	MONITORED BY: BN, JF, VM, AS, MN, HC, AZ
5 most abundant species *1 being most abundant*	SPECIES
1	*Avena barbarta*
2	*Lolium sp.*
3	*Bromus diandrus*
4	*Vulpia sp.*
5	*Trifolium subterraneum*
Complete list of plant species *In alphabetical order*	SPECIES
1	*Avena sp*
2	*Bromus diandrus*
3	*Bromus catharticus*
4	*Bromus hordeaceus*
5	*Carex inversa*
6	*Carthamus lanatus*
7	*Chondrilla juncea*
8	*Conyza sp.*
9	*Cynodon dactylon*
10	*Cyperus eragrostis*
11	*Dactylis glomerata*
12	*Dichondra repens*
13	*Echium vulgare*
14	*Eragrostis curvula*
15	*Erodium sp.*
16	*Geranium sp.*
17	*Holcus lanatus*
18	*Hypericum perforatum*
19	*Hypochaeris radicata*
20	*Juncus sp. Tall*
21	*Lolium rigidum*
22	*Medicago arabica*
23	*Microlaena stipodies*
24	*Modiola caroliniana*
25	*Oxalis sp.*
26	*Paspalum distichum*

27	*Phalaris sp.*
28	*Plantago lanceolata*
29	*Rubus anglocandicans*
30	*Rumex acetosella*
31	*Rumex brownii*
32	*Trifolium subterraneum*
33	*Vulpia sp*

Appendix 3: Combined ON and OFF jute results across all years – transect data

The on and off jute data have been combined because survey results between and on jute strips are quite similar. The combined data demonstrates the decrease in bare ground and increase of both native/ exotic plant cover over the course of 4 monitoring periods.

*Note, in April 2021 transects, due to difficulty with distinction between annual and perennial introduced grasses (and forbs), that all non-native grasses were grouped in the perennial category.

ON GROUND	November 2020 Average of OFF & ON jute	April 2021 Average of OFF & ON jute	October 2021 Average of OFF & ON jute	November 2022 Average of OFF & ON jute
Bare ground (incl loose sand/ loam) or algae	99.5	92.5	82	66
Rock or tile	0	0	0	1.5
Fine litter	0	0	5	21.5
Jute Fabric in scrape	11	4.5	3	19
Logs, sticks, bark	0	0	0	1.5
Themeda	0	0	0	1.5
Native grasses not Themeda	0	3	4	8
Other native species (forbs, ferns, sedges, lilies, orchids etc)	0	0	1	0
Annual introduced grasses and forbs	0.5	*	0.5	1.5
Perennial introduced grasses, forbs	0	4.5	7.5	1
SUSPENDED				
Fine litter	0	1	15	0
Logs, sticks, bark	0	0	0.5	5
Themeda	0	0	0.5	2
Native grasses not Themeda	19	70	65.5	58
Other native species (forbs, ferns, sedges, lilies, orchids etc)	4	7	10.5	7
Annual introduced grasses and forbs	17	*	17	42.5
Perennial introduced grasses, forbs	22	51.5	27	39

The combined values have been normalised to total 100 observations on ground for each observing date. Values have also been rounded to the nearest 0.5

Appendix 4: Braun Blanquet Scores Plot 2 – Native Species November-December 2022

SCRAPE & SOW MONITORING NATIVE SPECIES DATE: 5/12/2022 MONITORED BY: BN, JF, VM, AS, MN, HC, AZ PLOT NUMBER: 2 PLOT CENTRE COORDS: 25.6, 36.7		
NATIVES	Count 2022	BB score 2022
Acaena ovina (not sown) *		
Anthosachne scaber (not sown) *	1	1
Austrostipa bigeniculata	>15	3
Austrostipa densiflora	>15	3
Austrostipa scabra		2
Bothriochloa macra	>15	3
Bulbine bulbosa		
Calotis lappulacea	4	2
Carex inversa (not sown) *		
Chloris truncata		
Chrysocephalum apiculatum	4	2
Chrysocephalum semipapposum	5	2
Convolvulus erubescens	1	1
Cymbonotus lawsonianus (not sown) *		
Dichopogon fimbriatus		
Einadia nutans (not sown) *		
*Epilobium sp. (not sown)**	1	1
Eryngium ovinum		2
Euchiton sp. (not sown) *	1	1
Glycine tabacina		
Hakelia suaveolens (not sown) *		
*Helichrysum spp. (not sown)**		
Juncus bufonius (not sown) *		
*Lachnagrostis filiformis (not sown)**	1	1
Leucochrysum albicans	>15	3
Linum marginale	>15	3
Lythrum hysopifolium (not sown) *		
Microlaena stipoides		2
*Microtis sp. (not sown)**	7	2
Oxalis sp. (not sown) *		
Plantago varia		3
*Pseudognaphalium luteoalbum (not sown)**	3	2
Rhodanthe anthemoides	>15	3
Rumex brownii (assumed, not sown) *		3
Rytidosperma #1		3
Rytidosperma caespitosa		
Rytidosperma sp. #2 (hairy)		3
Themeda triandra		3
Vittadinia cuneata	1	1
*Vittadinia gracilis (not sown)**		
Vittadinia muelleri	>15	3
Wahlenbergia communis	>15	3
Wahlenbergia spp. *(small flower)*		2
Xerochrysum viscosum (not sown) *	2	1

Appendix 5: Braun-Blanquet Scores Plot 2 – Exotic species November-December 2022

SCRAPE & SOW SITE MONITORING - EXOTIC SPECIES DATE: 5/12/2022 MONITORED BY: BN, JF, VM, AS, MN, HC, AZ PLOT NUMBER: 2 PLOT CENTRE COORDS: 25.6, 36.7		
EXOTICS	Count 2022	BB Score 2022
Aira sp.		
Anthoxanthum odoratum		
Avena sp	>15	3
Briza maxima	>15	3
Bromus diandrus	>15	3
Bromus hordeaceus		
Carthamus lanatus	1	1
Centaurium sp.	2	1
Cerastium glomeratum		
Chondrilla juncea		3
Cirsium vulgare	4	2
Conyza sp.		3
Echium plantagineum		
Echium vulgare	1	1
Eragrostis curvula	>15	3
Festuca arundinacea	>15	3
Gamochaeta sp.	1	1
Hirschfeldia incana	2	1
Holcus lanatus	>15	3
Hypericum perforatum	>15	3
Hypochaeris glabra		
Hypochaeris radicata	>15	3
Lepidium africanum		
Lolium sp.		
Malvus sp.		
Medicago #2		
Medicago arabica		
Modiola caroliniana	3	2
Petrorhagia sp.	1	1
Plantago lanceolata	>15	3
Polygonum aviculare		
Rubus anglocandicans		
Rumex acetosella	>15	3
Rumex crispus		
Salvia verbenica		
Sanguisorba minor	1	1
Silybum marianum		
Sonchus sp.		
Trifolium angustifolium	>15	3
Trifolium arvense	>15	3
Trifolium campestre	>15	3
Trifolium dubium	>15	3
Trifolium glomeratum	>15	3
Trifolium striatum		
Trifolium repens		1
Trifolium subterraneum		
Verbascum thapsus	1	1
Verbascum virgatum		
Vulpia sp	>15	3

Appendix 6: Braun Blanquet Scores Plot 3 – Native Species November- December 2022

SCRAPE & SOW MONITORING NATIVE SPECIES DATE: 5/12/2022 MONITORED BY: PLOT NUMBER: 3 PLOT CENTRE COORDS: 14.9, 57.4		
NATIVES	Count 2022	BB score 2022
Acaena ovina (not sown) *	1	1
Anthosachne scaber (not sown) *	>15	3
Austrostipa bigeniculata		3
Austrostipa densiflora	>15	3
Austrostipa scabra	>15	3
Bothriochloa macra		2
Bulbine bulbosa		
Calotis lappulacea	>15	3
Carex inversa (not sown) *		
*Cassinia longlfolia (Not sown)**		
Chloris truncata		2
Chrysocephalum apiculatum		3
Chrysocephalum semipapposum	>15	3
Convolvulus erubescens		
Cymbonotus lawsonianus (not sown) *		
Dichopogon fimbriatus		
Einadia nutans (not sown) *		
Eryngium ovinum		3
Euchiton sp. (not sown) *	1	1
Glycine tabacina	3	2
Hakelia suaveolens (not sown) *		
Helichrysum spp. (not sown) *		
Juncus bufonius (not sown) *		
Leucochrysum albicans	>15	3
Linum marginale	>15	3
Lythrum hysopifolium (not sown) *		
Microlaena stipoides		2
*Microtis sp. (not sown)**	6	2
Oxalis sp. (not sown) *		
Plantago varia		2
*Pseudognaphalium luteoalbum (not sown)**		2
Rhodanthe anthemoides	>15	3
Rumex brownii (assumed, not sown) *	3	2
Rytidosperma #1 (Not hairy) *(not sown)**	>15	3
Rytidosperma caespitosa		
Rytidosperma sp. #2 (hairy)	>15	3
Themeda triandra		3
Vittadinia cuneata	1	1
*Vittadinia gracilis (not sown)**	5	2
Vittadinia muelleri	>15	3
Wahlenbergia communis	>15	3
Wahlenbergia spp.		
Xerochrysum viscosum (not sown) *	6	2

Appendix 7: Braun-Blanquet Scores Plot 3 – Exotic species November-December 2022

SCRAPE & SOW SITE MONITORING - EXOTIC SPECIES DATE: 5/12/202 MONITORED BY: PLOT NUMBER: 3 PLOT CENTRE COORDS: 14.9, 57.4		
EXOTICS	Count 2022	BB Score 2022
Aira sp.		3
Anthoxanthum odoratum		
Avena sp		2
Briza maxima		3
Bromus diandrus		
Bromus hordeaceus		
Carthamus lanatus		3
Cerastium glomeratum		
Cenraurium sp.	3	2
Chondrilla juncea	>15	3
Cirsium vulgare	4	2
Conyza sp.		3
Echium plantagineum		
Echium vulgare		
Eragrostis curvula		3
Festuca arundinacea		2
Gamochaeta sp.		
Hirschfeldia incana	3	1
Holcus lanatus	>15	3
Hypericum perforatum	>15	3
Hypochaeris glabra		
Hypochaeris radicata		3
Lepidium africanum		
Leontodon sp.	1	1
Lolium sp.		
Malvus sp.		
Medicago #2		
Medicago arabica		
Modiola caroliniana	>15	3
Petrorhagia sp.	3	2
Phalaris sp.	1	1
Plantago lanceolata	>15	3
Polygonum aviculare		
Rubus anglocandicans		
Rumex acetosella	>15	3
Rumex crispus		
Salvia verbenica		
Setaria sp.	1	1
Silybum marianum		
Sonchus sp.	2	1
Trifolium angustifolium		3
Trifolium arvense	>15	3
Trifolium campestre		3
Trifolium dubium		
Trifolium glomeratum		3
Trifolium repens		
Trifolium striatum	1	1

Trifolium subterraneum	>15	3
Verbascum thapsus		
Verbascum virgatum		
Vulpia sp	>15	3

Appendix 8: Monitoring pictures of the Scrape and Sow – November-December 2022

Figure 1: Top left corner of site and first open space

Figure 2: First jute band - 6m down from top left corner

Figure 3: Open space second from top

Figure 4: Jute band - 27m down from top

Figure 5: Open space third from the top

Figure 6: Jute band – 41.5m from the top

Figure 7: Open space fourth from the top

Figure 8: Jute band - 54.5m from the top

Figure 9: Open space fifth from the top

Figure 10: Jute band – 64.5m from the top

Figure 11: Bottom open space

Appendix 9: Monitoring pictures of the Scrape and Sow – October 2021

Figure 1: Top left corner of site and first open space

Figure 2: First jute band - 6m down from top left corner

Figure 3: Open space second from top

Figure 4: Jute band - 26.5m down from top

Figure 5: Open space third from the top

Figure 6: Jute band - 43m from the top

Figure 7: Open space fourth from the top

Figure 8: Jute band - 54.5m from the top

Figure 9: Open space fifth from the top

Figure 10: Jute band – 64.5m from the top