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Our Ref: 1610

24 October 2023

Claire and James Dennis
C/- Sonia Petering
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Dear Claire and James,

Re: Offset Management Plan: 435 McDonnells Road, Ombersely, Victoria

Ecolink Consulting was engaged by Claire and James Dennis to undertake a series of monitoring programs to evaluate the effectiveness of the management of an offset site, located on McDonnells Road, Ombersley (hereafter the study area: Figure 1). The 32-hectare offset site was established to offset for impacts to ecological values associated with the development of an industrial estate in Ravenhall, Victoria. This development was approved under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) via referral 2015/7486 on the basis that the proponent mitigates habitat losses for the nationally vulnerable Striped Legless Lizard *Delma impar* and approximately 18 hectares of the nationally threatened Natural Temperate Grasslands of Victorian Volcanic Plain (NTGVVP) ecological community.

An Offset Management Plan (OMP) for the offset site was prepared by Ecology and Heritage Partners Pty Ltd (2018). It prescribes a range of measures to ensure that the offset site is appropriately managed to preserve and enhance the ecological values offset within it (i.e. Striped Legless Lizards and NTGVVP). Section 8.3 of the OMP describes the requirements for Striped Legless Lizard surveys. Surveys are to be undertaken for an initial four year period and then in years 6, 8 and 10 of the OMP and thereafter upon written agreement with the Department of the Environment and Energy (now called the Department of Climate Change, Energy, the Environment and Water) (Ecology and Heritage Partners Pty Ltd 2018). Section 8.2 of the OMP relates to the monitoring of NTGVVP and requires that vegetation monitoring is undertaken for an initial four

year period and then in years 6, 8 and 10 of the management plan (Ecology and Heritage Partners Pty Ltd 2018).

This report presents the findings of the fourth Striped Legless Lizard surveys and vegetation assessment, undertaken in spring 2023. Due to prolonged wet weather throughout Winter and Spring 2022, and sodden soils flooding the tiles grids and precluding safe vehicular access during Spring, the Striped Legless Lizard surveys could not be undertaken in the fourth year of the implementation of the OMP. It was proposed that the fourth surveys be undertaken in Year 5 of the OMP (2023), to satisfy the OMP prescriptions, the results of which are presented below.

Striped Legless Lizard *Delma impar* Surveys

The Striped Legless Lizard is listed as 'Vulnerable' under Schedule 1 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. It is also listed as 'Endangered' on the Victorian *Flora and Fauna Guarantee Act 1988* Threatened List (Department of Environment Land Water and Planning 2021a). The species has a national recovery plan for its protection, prepared in 1999 (Smith and Robertson 1999).

The Striped Legless Lizard is a pale grey lizard up to 30 centimetres in length. They have a prominent, linear darker brown vertebral stripe running from head to tail, with finer, paler stripes on either side (Cogger 2000; Wilson and Swan 2010). Like all members of the Pygopodidae family, they are legless, with no visible forelimbs and reduced hind limbs that are apparent only as small flaps on either side of the vent (SEWPaC 2013).

Plate 1. Striped Legless Lizard

Striped Legless Lizards are usually found native in tussock grasslands and woodland (Wilson and Swan 2010), often dominated by species such as Spear Grass *Austrostipa bigeniculata* and Kangaroo Grass *Themeda triandra* (Smith and Robertson 1999). However recent observations of the species have demonstrated that non-native plant species, and even secondary grasslands, can support individuals of this species (Smith and Robertson 1999). This has led to a hypotheses that it is not the provenance of the grass species that is important, rather the structural characteristics of the vegetation that determines if the habitat is suitable for Striped Legless Lizards (Department

of Sustainability and Environment 2011; Smith and Robertson 1999). Within these habitats, Striped Legless Lizards are usually found sheltering underneath logs, rocks and other debris (Cogger 2000).

The Striped Legless Lizard was formerly distributed throughout temperate lowland grasslands in southern Australia (SEWPaC 2013). In Victoria, it is believed that the range of the species has contracted to southern parts of its former range, although it is no longer found close to inner metropolitan Melbourne (SEWPaC 2013). One of the largest extant populations of the species is found in Victoria on the Keilor plains at St Albans, west of Melbourne (SEWPaC 2013). There are likely to be more than 1000 individuals of this species remaining in the wild, most of which occur in large reserves within the Victorian Volcanic Plain, although the precise size of the population is not known (SEWPaC 2013).

There are five historical records of Striped Legless Lizard from within five kilometres of the study area reported in the VBA (Figure 1) (Department of Environment Land Water and Planning 2021b). These records are all from tile grids within the Dennis property. Other historic records supplied by the land-owner include 1 individual under Grid 7 in April 2015, and another two under Grid 7 in November 2016, and the shed skin of a possibly gravid female Striped Legless Lizard under Grid 6 in December 2016. Tile checks undertaken by Ecolink between 2017 and 2019 identified up to eight other individual Striped Legless Lizards underneath tiles in Grid 1 and 3. In October and December 2020 another observation under Grid 7 was added (Ecolink Consulting Pty Ltd 2020) and finally during the previous tile grid surveys in November 2020 and October 2021, one Striped Legless Lizard was recorded under Grid 1 and 7 during both surveys (Ecolink Consulting Pty Ltd 2021). The spring tile grid survey for 2022 was not conducted.

Methods

Ten tile grids were surveyed within the study area (Figure 1). The grids are located in parts of the study area considered to have the highest likelihood of providing habitat for the species. All grids comprise 50 terracotta roof tiles in a 5 x 10 metre grid. The tiles were placed prior to 2018, with an additional three tile grids laid in May 2020 (tile grids 8-10), in consultation with the Dennis family (Figure 1). This ensured that the tiles had become established, and allowed more time for lizards to preferentially utilise the artificial habitat.

During the current assessment tiles were checked by occasion by Principal Ecologist Stuart Cooney (survey 1), Ecologist/Botanist Jessica Murphy (survey 1 and 2) and Ecologist/Botanist Liam McCormack (survey 1 and 2) on 20 September (survey 1) and 10 October 2023 (survey 2:Table 1). Stuart is familiar with the species and has conducted dozens of similar tiling assessments for the species in the last decade, including the last six years of surveys at the study area. Surveys were undertaken under Permit No 10006840 issued by the Department of Environment and Primary Industries (now the Department of Energy, Environment and Climate Action).

The tiles were checked on fine days, early in the day, to avoid high temperatures later in the day. As lizards thermo-regulate, tiles may be desirable for basking and maintaining temperatures for

foraging or other activities. However, in higher temperatures, the tiles become too hot for lizards to remain underneath, or they become active and move elsewhere to forage, therefore reducing the chance of detecting the species.

Table 1. Weather conditions for Striped Legless Lizard surveys undertaken in September 2023

Date	Time	Temp (°C)	Under-tile Temp (°C)	Cloud Cover (8ths)
20 September 2023	9:30 – 11:40	16.5-20.1	22.7-24.8	1
10 October 2023	10:.00 –13:40	15.5–23.2	21.5–29.0	0

Results

Six Striped Legless Lizard were recorded under Grid 1, 3 and 7 during the September 2023 survey (Plate 2) and four were recorded under Grids 1, 7 and 10 during the October 2023 survey (Table 2; Figure 1). Other lizards observed during the current assessment included Whites Skink *Liopholis whitii,* Eastern Three Lined Skink *Acritoscincus duperreyi*, Robust Skink *Ctenotus robustus*, and Southern Tussock Skink *Pseudemoia pagenstecheri*. 292 Striped Marsh Frogs *Limnodynastes peronii* and 175 Spotted Marsh Frogs *Limnodynastes tasmaniensis* were observed during the current assessment, across all Grids (except Grid 4), in both the September and October surveys, with high populations found under Grids 1, 3, 5 and 7 (Plate 3). Two Copperhead Snakes *Austrelaps superbus* were also observed under Grids 1 and 5 (Plate 4) during the September survey and three Copperhead Snakes were observed under Grids 8 and 9 during the October survey.

Table 2. Results of Striped Legless Lizard count observed during the targeted surveys undertaken in September 2023 and October 2023.

	Grid Location										
Date	1	2	3	4	5	6	7	8	9	10	Total
10 October 2023	3	-	2	-	-	-	1	-	-	-	**6**
20 September 2023	1	-	-	-	-	-	2	-	-	1	**4**

During the October survey 2023, Grid 3 had been burned through the centre of the tiles, which could have impacted the Striped Legless Lizard count, as could have the presence of grazing sheep across Grid 4, although this Grid is known to have been placed in sub-optimal habitat, is outside the offset area.

During previous surveys, the tiles in the south (Grids 6 and 9), were located in wetter soils than those in the north. Tiles within Grid 6 were also water-logged, embedded and stuck into the ground during the current assessment, possibly making them less accessible for Striped Legless Lizards during this survey period. Despite this, however, during the current survey, the height of understory was relatively low, and the site was mostly dry, creating ideal conditions for tile assessment and the Grids generally provided high quality refuges for Striped Legless Lizards.

Discussion

Ten Striped Legless Lizards were detected during the current assessment. These lizards were observed under Grids 1, 3, 7, and 10 where the majority of the historic observations originate. Although Grid 7 is not located within the offset site, it is very close to the northern boundary of the offset site, and animals using Grid 7 are likely to range into the offset site on occasion. At least four other lizard species and a relatively large population of frogs were recorded during the current assessment, comprising a greater variety of species to those recorded in previous years.

The results of the current assessment demonstrate that a population of Striped Legless Lizard persists within the study area. Surveys will be undertaken again early in next season's survey window for the sixth round of monitoring.

Plate 2. Striped Legless Lizard observed during the current assessment.

Plate 3. Spotted Marsh Frog at Grid 7.

Plate 4. Copperhead Snake at Grid 5.

Annual Detailed Vegetation Monitoring

The purpose of the ongoing monitoring of the vegetation within the study area is to determine whether management actions are improving the quality of habitat for Striped Legless Lizards and NTGVVP.

Methods

The site was traversed in a vehicle and on foot by Principal Ecologist, Simon Scott, on 10 October 2023. A list of flora species observed whilst traversing the site was recorded.

Monitoring of the vegetation included the following:

- An assessment of the quality and quantity of vegetation and composition of species, using the Department of Environment, Land, Water and Planning's endorsed Habitat Hectare assessment methods (Department of Sustainability and Environment 2004);
- Biomass levels (vegetation height and vegetation cover), assessed through 14 x 1m^2 sampling plots equidistant along the offset site (Figure 2); and,
- The extent, severity, trend and presence of current weed species and any new and emerging weed species.

The quadrat size and height metrics were measured with a tape measure, and a photograph of each quadrat was taken. Whilst these photographs are not included within these reports, they can be provided via email.

The Habitat Hectare assessment was undertaken in accordance with the methodology prescribed within the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004). All indigenous vegetation was assessed, and then assigned a quality rating based on the Habitat Hectare score (Department of Sustainability and Environment 2004).

Results

Several notable changes have occurred since the previous assessment in December 2022:

- The assessment was undertaken in the approximate middle of Spring. This is the most desirable survey timing, however in was not possible during the two previous years, with surveys being conducted in December. The was due to the heavy rainfall during Spring and early Summer of the previous years and was therefore unavoidable. However, it has meant that the current survey has been undertaken during drier conditions, with a relatively low amount of rainfall during August and September 2023 when compared with the preceding two years; and
- In turn, this has meant that the survey has been conducted in a period which was closer to the conditions during Winter grazing, normally undertaken by the landowners. This reduced the height of the vegetation. The grazing and earlier survey period means that many of the plants observed contained little or no fertile material (flowers, seeds) which

are used for identification purposes. For this assessment, Wallaby-grasses *Rytidosperma* sp. have been combined rather than identified to species level.

- A more extensive weed management program has occurred in 2023 than in the previous years, with the study area being divided into separate paddocks, and targeted weed management and burning regimes applied to measure success.

A total of 54 flora species were recorded within the study area during the current assessment. This comprised 23 indigenous and 31 exotic plant species (Table A1). Flora species which were previously recorded by Ecolink Consulting, but not observed during the current assessment included the indigenous Dwarf Mat-rush *Lomandra nana*, Fairies Aprons *Utricularia* sp., Lesser Joyweed *Alternanthera denticulata,* Plume Grass *Dichelachne* spp. and the exotic Salsify *Tragopogon porrifolius* subsp. *porrifolius.*

Three species were added to the flora list previously compiled for the site, including Annual Meadow-grass *Poa annua*, Slender Cicendia *Cicendia filiformis* and Bartsia *Bellardia latifolia.* All of these species are exotic.

The study area was dominated by native Kangaroo Grass *Themeda triandra,* which averaged 25% cover abundance (projective foliage cover) across the survey sites. This has increased from 23.9% from the previous year.

Other dominant and widespread indigenous species included Common Tussock-grass *Poa labillardierei* (6.79%), Wallaby-grass *Rytidosperma* sp. (7.29%), Common Bog-sedge *Schoenus apogon* (2.79%), Weeping Grass *Microlaena stipoides* var. *stipoides* (2.71%) and Grassland Wood-sorrel *Oxalis perennans* (2.64%).

Consistently widespread native species included Common Wheat-grass *Anthosachne scabra*, Blue Devil *Eryngium ovinum*, Sheep's Burr *Acaena echinata,* and Scaly Buttons *Leptorhynchos squamatus* (Table A3).

Dominant exotic species included Onion Grass *Romulea rosea* (9.86%), Flatweed *Hypochaeris radicata* (7.29%), Wimmera Rye-grass *Lolium rigidum* (5.14%), Sweet Vernal-grass *Anthoxanthum odoratum* (4.29%), Brown-top Bent *Agrostis capillaris* (3.79%), the Fog Grasses *Holcus lanatus* and *Holcus annuus* (2.43%) and Squirrel-tail Fescue *Vulpia bromoides* (2.0%) . Of these species, Flatweed, Onion Grass and Squirrel-tail Fescue have increased in cover abundance since the previous assessment (Table A2). However, these latter three species are annual species, and we would not expect that they would persist later into Summer months. The increase in these species may therefore be attributed to the season, rather than an actual change in cover abundance at the study area.

The results of the current cover abundance of exotic vegetation relative to the previous assessments are provided in Table A2. These show a slight decrease in cover abundance of some weeds such as Brown-top Bent, Rough Dog's-tail, the Fog Grasses and Sweet Vernal-grass which are priority weeds within the study area. The cover abundance of other priority weeds including Oats *Avena* sp., Toowoomba Canary-grass *Phalaris aquatica,* Perennial Rye-grass *Lolium perenne*

remains low. These data suggests that efforts to manage these weeds, through the application of herbicides and burning, has been successful. Some success may also be attributed to the relatively low rainfall during August and September 2023, when compared with the previously high rainfall recorded during the previous two La Niña years.

The cover abundance of native vegetation appeared visually higher during the current assessment when compared with previous years, and the vegetation quadrats confirmed this. The total cover abundance of native vegetation exceeded 57%; an increase of 5% from the previous year (Table A5). Continuing to prioritise the above-mentioned species for management will reduce the overall cover abundance of weeds.

The native vegetation within the study area remains representative of the Natural Temperate Grasslands of the Victorian Volcanic Plain ecological community, with no significant changes to its classification from when it was assessed for the preparation of the OMP (Ecology and Heritage Partners Pty Ltd 2018).

Vegetation quality throughout the offset site remains high, with a Habitat Hectare Score of 43 (out of 100) (Table 3).

Table 3. Habitat Hectare Score results

Bioregion			**Vic Volcanic Plain**
EVC name			**Heavier-soils Plains Grassland**
EVC number			**132_61**
Conservation rating within bioregion			**Endangered**
	Assessment Criteria	**Maximum Score**	**Patch Score**
Site Condition	a. Large old trees	10	N/A
	b. Canopy cover	5	N/A
	c. Understorey	25	15
	d. Lack of weeds	15	4
	e. Recruitment	10	6
	f. Organic litter	5	5
	g. Logs	5	N/A
	h. Total (sum of a-g)	75	30
Standardise Score (x 1.36)			41
Landscape valve	i. Patch size	10	8
	j. Neighbourhood	10	1
	k. Distance to core	5	4
l. Habitat Points (total)		**100**	**54**
m. Habitat score (l ÷ 100)			0.54

Biomass was assessed at 14 x 1 m^2 sampling plots placed throughout the study area (Table A5 Figure 2). Bare ground cover was assessed at an average of almost 11% across the plots (Table

A5). This remains lower than the optimum 20-40%, as indicated in the Habitat Hectare Gain Scoring Manual (Department of Sustainability and Environment 2004).

Rock cover was approximately 0.9% cover across all quadrats assessed. The average height of the vegetation was just greater than 16 centimetres. This is less than half of the height recorded during the previous assessment. The height difference is attributed to the relatively recent grazing of sheep with the study area. During the previous two years, sheep had been removed months prior to the assessment (to prevent pugging of the ground in the wet soil). The previously mentioned weather conditions are also likely to account for this substantial change in vegetation height and reduced biomass.

Discussion

The OMP identifies 24 exotic species to be managed. The current assessment identified 16 of these species as being present within the study area (Table A2). Biomass target levels are mandated at being a minimum of 10 centimetres in height and with vegetation cover of no greater than 70% (Ecology and Heritage Partners Pty Ltd 2018). This level of vegetative cover was generally not achieved, and most plots exhibited lower than expected bare ground, compared to the EVC Benchmark. This suggests a higher biomass than would be expected in a pre-European state.

Only one noxious weed was recorded by both assessments: Spear Thistle *Cirsium vulgare*. The examples of this weed included only one living plant and two dead plants, suggesting that the management of this species has been largely successful. This species is classified as Regionally Controlled within the Corangamite Catchment Management Area. This, and seven other species, have been identified as priority weeds. Priority weeds include dominant and widespread perennial exotic species the same as the previous report, including Brown-top Bent, Sweet Vernal-grass and Fog-grasses (Table A2).

The current management regime includes pulse grazing, burning and a weed management program. The area is divided into small paddocks to allow the land managers to trial different treatments and measure success. This is consistent with the adaptive management objectives which must be applied as part of best practice management of weeds.

Conclusion

Six Striped Legless Lizards were observed during the current assessment, demonstrating that the grasslands within the offset site remain suitable for the species, and continue to support the nationally threatened ecological community NTGVVP.

There has been a notable reduction in weeds since the previous year. It is expected that ongoing management of the offset site will increase the inter-tussock space and reduce biomass, which will further enhance the habitat within the study area for Striped Legless Lizards. Ongoing management actions prescribed within the OMP (Ecology and Heritage Partners Pty Ltd 2018), as well as the land managers ongoing adaptive management techniques should continue.

The next round of Striped Legless Lizard surveys will be undertaken in summer 2024 (due to abandoning one season, the equivalent of the sixth year of the OMP), while the next vegetation survey will be undertaken in 2025 (the equivalent of the sixth year of the implementation of the OMP, given the delay in the first vegetation survey).

I trust the above meets with your expectations, but please call me if you have any queries, or require any amendments.

Kind regards,

Stuart Cooney
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Table A1. Flora species recorded during the current assessment

Origin	Common Name	Scientific Name	Weed of National Significance	Noxious Weeds Classification
*	Annual Fog	*Holcus annuus*	-	-
*	Bartsia	*Bellardia latifolia*	-	-
*	Bearded Oat	*Avena barbata*	-	-
	Blue Devil	*Eryngium ovinum*	-	-
	Brown-back Wallaby-grass	*Rytidosperma duttonianum*	-	-
*	Brown-top Bent	*Agrostis capillaris*	-	-
*	Buck's-horn Plantain	*Plantago coronpus*	-	-
*	Chickweed	*Stellaria media*	-	-
	Chocolate Lily	*Arthropodium strictum*	-	-
	Coarse Club-rush	*Isolepis marginata*		
*	Cocksfoot	*Dactylis glomerata*	-	-
	Common Blown-grass	*Lachnagrostis filiformis*	-	-
	Common Bog-sedge	*Schoenus apogon*	-	-
	Common Onion-orchid	*Microtis unifolia*	-	-
	Common Tussock-grass	*Poa labillardierei*	-	-
	Common Wallaby-grass	*Rytidosperma caespitosum*	-	-
	Common Wheat-grass	*Anthosachne scabra*	-	-
	Common Woodruff	*Asperula conferta*	-	-
*	Couch	*Cynodon dactylon* var. *dactylon*	-	-
*	Curled Dock	*Rumex crispus*	-	-
*	Dandelion	*Taraxacum officinale*	-	-
	Finger Rush	*Juncus subsecundus*	-	-
*	Flatweed	*Hypochaeris radicata*	-	-
	Grassland Wood-sorrel	*Oxalis perennans*	-	-
*	Hop Clover	*Trifolium campestre* var. *campestre*	-	-
	Kangaroo Grass	*Themeda triandra*	-	-
	Knob Sedge	*Carex inversa*	-	-
*	Large Quaking-grass	*Briza maxima*	-	-
*	Lesser Quaking-grass	*Briza minor*	-	-
*	Narrow-leaf Clover	*Trifolium angustifolium* var. *angustifolium*	-	-
*	Onion Grass	*Romulea rosea*	-	-
*	Ox-tongue	*Helminthotheca echioides*	-	-
	Pale Sundew	*Drosera peltata*	-	-
*	Perennial Rye-grass	*Lolium perenne*	-	-

Origin	Common Name	Scientific Name	Weed of National Significance	Noxious Weeds Classification
	Pink Bindweed	*Convolvulus erubescens*	-	-
*	Ribwort	*Plantago lanceolata*		
*	Rough Dog's-tail	*Cynosurus echinatus*	-	-
	Rough Spear-grass	*Austrostipa scabra*	-	-
	Scaly Buttons	*Leptorhynchos squamatus*	-	-
*	Sheep Sorrel	*Acetosella vulgaris*		
	Sheep's Burr	*Acaena echinata*	-	-
*	Silvery Hair-grass	*Aira caryophyllea* subsp. *caryophyllea*	-	-
	Slender Cicendia	*Cicendia filiformis*	-	-
	Small Loosestrife	*Lythrum hyssopifolia*	-	-
*	Soft Brome	*Bromus hordeaceus*	-	-
*	Spear Thistle	*Cirsium vulgare*	-	Regionally Controlled
	Star Cudweed	*Euchiton sphaericus*	-	-
*	Sweet Vernal-grass	*Anthoxanthum odoratum*	-	-
*	Tiny Flat-sedge	*Isolepis levynsiana*	-	-
	Toad Rush	*Juncus bufifonis*	-	-
*	Toowoomba Canary-grass	*Phalaris aquatica*	-	-
	Varied Raspwort	*Haloragis heterophylla*	-	-
	Velvet Tussock-grass	*Poa rodwayi*	-	-
	Weeping Grass	*Microlaena stipoides* var. *stipoides*	-	-
*	Wild Oat	*Avena fatua*	-	-
*	Wimmera Rye-grass	*Lolium rigidum*	-	-
*	Winter Grass	*Poa annua*	-	-
	Wiry Dock	*Rumex dumosus*	-	-
*	Yorkshire Fog	*Holcus lanatus*	-	-

* exotic

Table A2. Recorded Exotic Flora Species, Cover Abundance and Cover Targets. Green figures indicate reductions in cover abundance, red figures represent increases in cover abundance, from the previous survey.

Common Name	Scientific Name	Cover (%) by EHP 2018	Cover (%) by Ecolink 2020	Cover (%) Ecolink 2021	Cover (%) Ecolink 2022	Cover (%) Ecolink 2023	Priority Weed	Target (cover %)[1]
Annual Meadow-grass	*Poa annua*	-	-	-	-	2	-	<1
Bearded Oat	*Avena barbata*	<1	3	1	<1	<1	-	<1
Brown-top Bent	*Agrostis capillaris*	<1	7	8	7	4	Yes	<1
Buck's-horn Plantain	*Plantago coronopus*	<1	<1	<1	<1	<1	-	<1
Capeweed	*Arctotheca calendula*	<1	<1	<1	<1	<1	-	<1
Flatweed	*Hypochaeris radicata*	<1	5	3	3	7	-	<1
Chickweed	*Stellaria media*	<1	<1	<1	<1	<1	-	<1
Couch	*Cynodon dactylon* var. *dactylon*	10	<1	1-2	<1	<1	Yes	<1
Curled Dock	*Rumex crispus*	-	<1	<1	<1	<1	-	<1
Dandelion	*Taraxacum officinale*	-	-	<1	<1	1	-	xx
Fog Grasses	*Holcus annuus and Holcus lanatus*	5	<1	9-10	6	2	Yes	<1
Hair Grass	*Aira spp.*	<1	<1	1-2	<1	<1	-	<1
Hare's-foot Clover	*Trifolium arvense*	<1	<1	<1	<1	<1	-	<1
Hop Clover	*Trifolium campestre* var. *campestre*	<1	<1	<1	<1	<1	-	<1
Large Quaking Grass	*Briza maxima*	<1	<1	<1	<1	<1	-	<1
Lesser Quaking Grass	*Briza minor*	-	3	5	4	2.5	-	<1
Narrow-leaf Clover	*Trifolium angustifolium*	-	-	1-2	<1	<1	-	<1
Onion Grass	*Romulea rosea*	<1	2	1-2	<1	10	-	<1
Ox-tongue	*Helminthotheca echioides*	<1	<1	<1	<1	<1	-	<1
Perennial Rye-grass	*Lolium perenne*	<1	2	1-2	<1	<1	Yes	<1
Ribwort	*Plantago lanceolata*	<1	<1	<1	<1	<1	-	<1

Common Name	Scientific Name	Cover (%) by EHP 2018	Cover (%) by Ecolink 2020	Cover (%) Ecolink 2021	Cover (%) Ecolink 2022	Cover (%) Ecolink 2023	Priority Weed	Target (cover %)[1]
Rough Dog's-tail	*Cynosurus echinatus*	-	<1	3	5	1	Yes	<1
Salsify	*Tragopogon porrifolius* subsp. *porrifolius*	<1	<1	<1	<1	0	-	<1
Sheep Sorrel	*Acetosella vulgaris*	<1	<1	1	2	<1	-	xx
Slender Centaury	*Centaurium tenuiflorum*	-	<1	<1	<1	<1	-	<1
Smooth Cat's Ear	*Hypochaeris glabra*	5	5	<1	<1	<1	-	<1
Soft Brome	*Bromus hordeaceus*	<1	<1	<1	<1	<1	-	<1
Spear Thistle	*Cirsium vulgare*	<1	<1	<1	<1	<1	Yes	<1
Squirrel-tail Fescue	*Vulpia bromoides*	<1	<1	4	1	2	-	<1
Subterranean Clover	*Trifolium subterraneum*	-	<1	<1	<1	<1	-	<1
Sweet Vernal-grass	*Anthoxanthum odoratum*	<1	<1	2-3	6	4	Yes	<1
Toowoomba Canary-grass	*Phalaris aquatica*	5	<1	<1	<1	<1	-	<1
Wimmera Rye-grass	*Lolium rigidum*	-	<1	<1	11	5	-	<1

Table A3. Cover abundance of native species within each quadrat

Quadrat	*Themeda triandra*	*Microlaena stipoides*	*Lomandra filiformis*	*Rytidosperma sp.*	*Arthropodium strictum*	*Drosera sp.*	*Crassula decumbens*	*Schoenus apogon*	*Austrostipa bigeniculata*	*Leptorhynchos squamatus*	*Eryngium ovinum*	*Elymus scaber*	*Oxalis perennans*	*Acaena echinata*	*Convolvulus*	*Juncus subsecundus*	*Poa labillardierei*
1	20	15	-	7	-	-	-	-	10	-	-	-	-	-	-	-	-
2	-	-	-	5	-	-	-	5	-	-	-	-	5	2	-	-	35
3	-	5	-	5	-	-	-	-	-	-	3	-	-	4	-	-	35
4	40	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
5	45	-	-	-	-	-	-	2	3	-	-	-	5	3	-	-	-
6	35	-	5	15	-	5	2	3	-	-	-	-	5	-	-	-	-
7	40	-	-	-	-	-	5	-	-	-	-	-	10	2	-	-	-
8	50	-	-	-	-	-	-	5	-	2	5	-	-	-	-	-	-
9	40	5	-	5	-	1	-	5	-	1	-	-	-	-	-	-	-
10	15	-	-	10	-	-	-	5	5	-	8	2	2	-	5	-	-
11	-	5	-	10	-	-	5	5	-	1	3	-	-	-	1	10	25
12	10	-	2	35	-	1	2	3	-	3	-	5	2	-	1	-	-
13	55	-	-	-	-	2	-	3	-	1	-	5	-	-	-	-	-
14	-	8	-	10	1	-	-	2	-	8	5	5	8	-	-	5	-
Avg.	**25.00**	**2.71**	**0.50**	**7.29**	**0.07**	**0.64**	**1.00**	**2.79**	**1.29**	**1.14**	**1.71**	**1.21**	**2.64**	**0.79**	**0.50**	**1.07**	**6.79**

Table A4. Cover abundance of exotic species within each quadrat

Quadrat No	*Briza minor*	*Agrostis capillaris*	*Anthoxanthum odoratum*	*Hypocaheris radicata*	*Holcus spp*	*Vulpia bromoides*	*Taraxacum officianale*	*Acestosealla vulgaris*	*Cynosurus echinatus*	*Aira caryophyllea*	*Lolium perenne*	*Romulea rosea*	*Plantago lanceolata*	*Trifolium angustifolium*	*Centaurium tenuiflorum*	*Lolium rigidum*	*Stellaria media*	*Cynodon dactylon*	*Poa annua*	*Trifolium campestre*
1	-	15	5	-	-	5	-	-	5	-	-	5	-	-	-	10	-	-	3	-
2	2	-	5	18	5	-	-	-	-	-	-	5	-	-	-	10	-	-	3	-
3	-	10	-	5	3	-	-	-	5	-	5	10	-	-	-	10	-	-	-	-
4	5	-	30	10	4	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
5	-	-	-	22	-	-	-	-	-	-	-	15	-	-	-	5	-	-	-	-
6	10	-	-	5	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-
7	10	3	-	10	5	-	-	-	-	-	-	10	-	-	-	-	-	-	5	-
8	2	-	10	-	-	3	-	-	-	-	3	15	-	-	-	5	-	-	-	-
9	-	5	-	2	5	10	-	-	-	-	-	10	-	-	-	-	1	-	10	-
10	-	5	10	-	2	5	-	-	-	1	-	10	1	3	-	5	1	-	5	-
11	3	-	-	7	-	-	-	-	-	-	4	10	-	-	1	10	-	-	-	-
12	2	5	-	-	10	5	-	-	5	1	-	8	-	-	-	-	-	-	-	-
13	1	10	-	3	-	-	-	-	-	-	-	5	-	-	-	10	-	5	-	-
14	-	-	-	20	-	-	5	-	-	2	-	10	-	-	-	7	3	-	-	1
Total	**35**	**53**	**60**	**102**	**29**	**18**	**5**	**0**	**15**	**4**	**12**	**138**	**1**	**3**	**1**	**72**	**5**	**20**	**26**	**1**
Avg.	**2.50**	**3.79**	**4.29**	**7.29**	**2.43**	**2.00**	**0.36**	**0.00**	**1.07**	**0.29**	**0.86**	**9.86**	**0.07**	**0.21**	**0.07**	**5.14**	**0.36**	**0.36**	**1.86**	**0.07**

Table A5. Co-ordinates, Rock, bare ground, vegetation height and percentage cover of vegetation

Quadrat No	Latitude	Longitude	Rock (cover %)	Bare ground (cover %)	Average height of vegetation (cm)	Native Vegetation (% of quadrat)	Exotic Vegetation (% of quadrat)
1	143.772	-38.2617	0	5	20	52	48
2	143.7681	-38.2602	8	15	25	52	48
3	143.7672	-38.2569	0	5	25	52	48
4	143.7652	-38.2569	0	15	15	41	59
5	143.7653	-38.2587	0	10	10	58	42
6	143.7671	-38.2585	0	20	10	70	30
7	143.7663	-38.2626	0	5	10	57	43
8	143.7692	-38.2625	0	15	15	62	38
9	143.7646	-38.2603	0	10	40	57	43
10	143.7648	-38.2611	0	1	5	52	48
11	143.767	-38.2612	0	20	20	65	35
12	143.769	-38.2616	0	5	10	64	36
13	143.7702	-38.2605	0	20	10	66	34
14	143.7666	-38.2573	5	10	10	52	48
Avg.			**0.93**	**11.14**	**16.07**	**57.14**	**42.85**

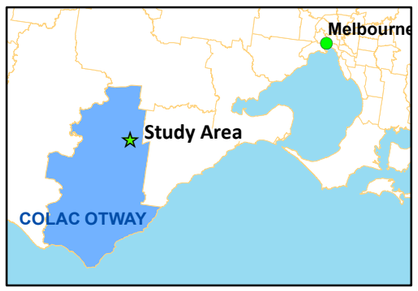
Figure 1: Striped Legless Lizard survey locations and historic observations

McDonnells Road, Birregurra

Legend

- Study Area
- Striped Legless Lizard Tile Grids
- Historic SLL Observations
- SLL Recorded During the Current Assessment

0 70 140 210 280
Meters



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Tile Grid 4
Tile Grid 2
2018
2017
Tile Grid 1
2021
2021
2017
2017
2018
2018
Tile Grid 3
OMBERSLEY
Tile Grid 5
Tile Grid 10
Tile Grid 8
Offset Site: CFL-3044 2
2021
2015
2021
Tile Grid 7
2006
2007
Tile Grid 9
Offset Site: CFL-3044 1
2016
Tile Grid 6

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

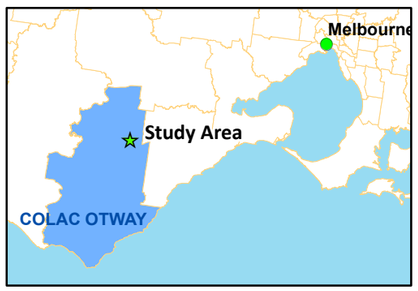
Figure 2: Biomass plot locations

McDonnells Road, Birregurra

Legend

- Study Area
- Biomass plot locations 2019

0 50 100 150 200 Meters



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