
Sequestering Soil Carbon in Irrigated Landscape Turned Dry Ecological Grazing

Establishment of a Vegetation Monitoring Program



Prepared for Kilter PTY LTD, December 2013

Project AOTGR1-167 Technical Report No.5

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1.0 INTRODUCTION

1.1 Project Context

Kilter PTY LTD engaged the authors to establish a baseline vegetation monitoring program for a series of nine ex-irrigation paddocks in the Swan Hill district, northern Victoria. These paddocks are currently part of the Action on the Ground (AotG) project that is demonstrating the potential for increasing soil carbon through conversion to dryland farming practices. In the long term it is anticipated that the removal of irrigation and introduction of controlled grazing and protected biodiversity practices could increase soil carbon by as much as 1%.

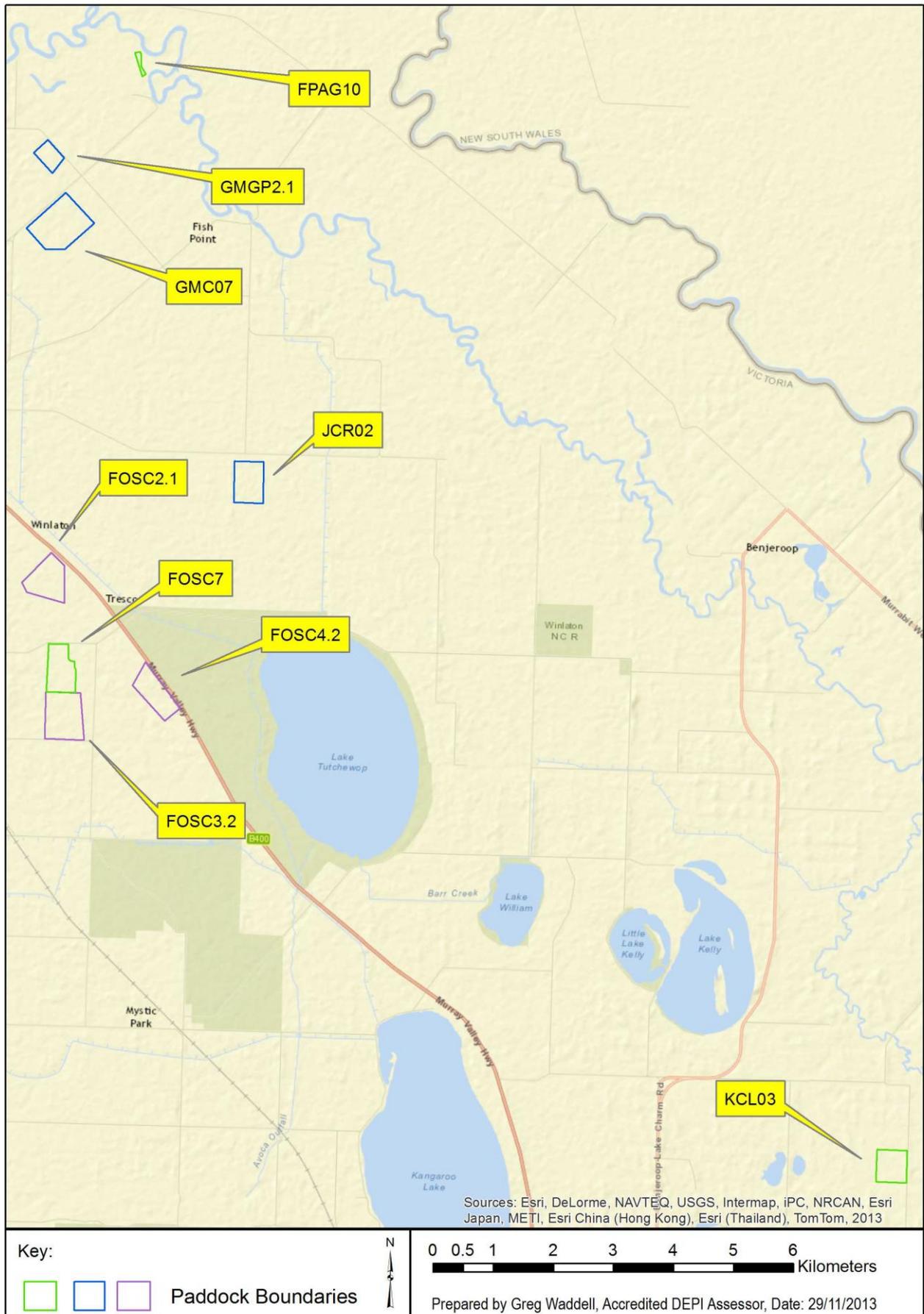
As part of this process Kilter aim to monitor the vegetation composition and biomass across each of the project sites. The authors therefore established a set of permanent 10 x 10m quadrats across each of the paddocks to assist with monitoring key vegetation attributes. These baseline data are presented in the following report.

1.2 Study Area

The study area encompasses nine paddocks of varying sizes located to the south and east of Lake Boga. This area is mostly a cleared landscape with scattered remnant vegetation occurring on roadsides and within private blocks. It largely occurs on the higher alluvial terraces of the Murray River and would originally have been dominated by Black Box woodlands (EVC Riverine Chenopod Woodland) and low chenopod shrublands (EVC Chenopod Grassland) with low lying areas closer to the river supporting River Red Gum forests (EVC Riverine Grassy Woodland). A series of rises occur throughout the area that are aeolian deposits from nearby lakes. These would probably once have supported Cypress-pine woodlands (EVC Semi-arid Chenopod Woodland) but all examples have long been cleared.

The study area falls within the jurisdiction of the North Central Catchment Management Authority (NCCMA) and is located at the interface of three separate bioregions, the Murray Fans, Murray Mallee and Victorian Riverina.

Kilter Carbon Project -Paddock Overview Aerial



2.0 METHODOLOGY

2.1 Vegetation quadrats

The vegetation survey was undertaken over three consecutive days from the 13-15th of November 2013. The vegetation of each paddock was sampled using up to five 10 x 10m quadrats. In general, five quadrats were established in larger paddocks with diverse vegetation while three or four quadrats were established in paddocks that were either smaller in size or less floristically diverse. Quadrats were located throughout the paddocks to achieve an even spread across the total area and to gain a representative sample of the vegetation variability (e.g. for a paddock supporting a mix of shrubland and grassland, quadrats were placed in at least one patch of each of these communities). Small isolated patches of other vegetation communities which had minimal influence on the paddock were disregarded. Quadrats were also located so as to avoid trees, as the aim was to sample understorey vegetation.

All quadrats were aligned from north to south and located within old irrigation bays away from infrastructure. Each quadrat was permanently marked in the north-west corner either with a wooden surveyor peg at ground height (for non-biodiversity paddocks) or with a 1.5 meter steel star picket with a yellow cap (for biodiversity paddocks). These were geographically reference with a handheld GPS with an accuracy of 5 meters, using the coordinate system GDA 1994 mga 55.

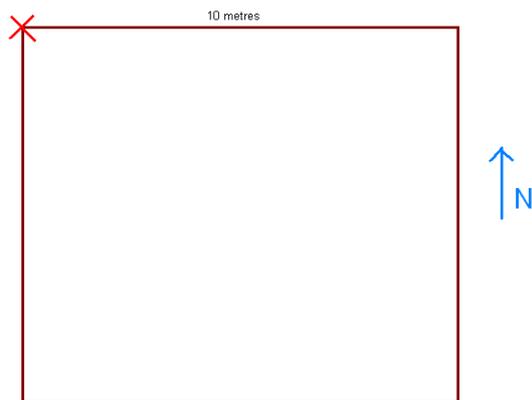


Figure 2 Quadrat design

Two reference photos were taken from the north-west corner, including a photo at 1.5 meters and a photo at 2.6 meters (the latter taken with the aid of a vehicle). Within each quadrat all vascular plant species were recorded and each lifeform (not species) assigned a cover value to the nearest 1%. For lifeforms with less than 1%, the following cover values were assigned:

- + less 0.5% cover
- ^ 0.5- <1% cover

Cover values were also assigned to bare ground, litter and soil crust. Litter was defined as any detached dry plant material, or dead perennial plants. Due to the relatively late timing of the survey annuals that had senesced within the last three months were counted as plant cover. Soil crust encompassed both bryophytes and lichens, and was only assessed where clearly visible (ie; it is hard to assess levels of soil crust that may exist under very dense vegetation). Note that the total cover of all attributes was often around 120% due to the multi-layered structure of vegetation, bare ground,

litter and soil crust (eg. Litter, bare ground, and soil crust may exist under the cover of the low understorey of grasses and herbs, which in themselves may exist under the cover of the taller shrub layer).

The height of the vegetation was averaged for each quadrat, with grass and shrub layers usually assessed separately. Finally, each quadrat was assessed using the Doug Froud rapid vegetation condition assessment which provides a score of 1-5 based on the 'intactness' of the community in relation to its pre-1750 condition. It takes into account diversity of indigenous species, weed cover and impacts to ecological process (see Appendix 1).

2.2 Lifeform codes

The tables in this report assign each lifeform a code. The codes are as follows:

S – Shrub. Any indigenous woody species that has an upright growth form.

S* - Exotic Shrub. Any exotic woody species.

PS – Prostrate Shrub. Any indigenous woody species that has a prostrate growth form.

H – Herb. Any indigenous herbaceous species.

EH* - Exotic Herb. Any exotic herbaceous species.

TG – Tussock Grass. Any indigenous non-stoloniferous or non-rhizomatous grass.

ETG* – Exotic Tussock Grass. Any exotic grass.

S/R – Sedge/Rush. Any indigenous species from the families Cyperaceae and Juncaceae.

G – Geophyte. Any indigenous species growing from underground tubers.

EG* - Exotic Geophyte. Any exotic species growing from underground tubers.

S/C – Scrambler/Climber. Any indigenous species with a scrambling or climbing habitat.

SC – Soil Crust. All bryophytes and lichens.

BG – Bare Ground. Excluding any ground covered with soil crust or litter.

L – Litter. Including all leaf and dead plant litter. Excluding recently senescent annuals. Including dead perennials.

2.3 Plant Taxonomy

Plant taxonomy followed the Flora Information System with consideration to the Census of Victoria Vascular Plants (Walsh and Stajic, 2007). Throughout this report, an * (asterisk) sign denotes an exotic plant taxon while a # (hash) sign denotes a non-indigenous native.

2.4 Survey limitations

Plant surveys commonly fail to record the total diversity of taxa present due to inherent limitations. Many plant species can be difficult to detect in a community due to seasonal growth cycles, small size or low population numbers. Most geophytes (plants with underground tubers) are only active for several months of the year and spend the rest of the time in dormancy, while therophytes (annuals) only grow for part of the year before seeding and senescing. In general, spring is the most active time of year for herbaceous species as most flower at this time, while during summer and early autumn it can be difficult to detect many of these species. Late spring and early summer is generally the best time to record most grasses, as this is when they produce seed which aids in detection and identification.

The current survey was conducted relatively late in spring during a period of well below average rainfall. Three out of the last four months had been very dry, with almost no rain falling during the month of the survey (November). As a result the vegetation was found to be very dry and many plant species were desiccated, sometimes making them difficult to identify. It is therefore likely that additional species would be recorded during an early spring survey under wetter conditions.

Month	Average (mm)	Total (mm)
August	29.6	12
September	26	46
October	24.3	14.4
November	49	0.6 (to 25/11/2013)
<i>Total Aug-Nov</i>	<i>128.9</i>	<i>73.0</i>

Table 1. Showing the well below average rainfall for the Swan Hill district in the last four months (source: Elders Weather <http://www.eldersweather.com.au/>)

3.0 RESULTS

A summary of the results for each paddock are presented below.

3.1 Paddock FOSC2.1

Paddock FOSC2.1 is a 38ha grazing cell that is at the northern extremity of 1000ha of grazing and biodiversity lands comprising the 'Five-On-Seven' block. The site is located approximately 6.5 kilometers south-east of the township of Lake Boga. Prior to clearance, the site would probably have supported vegetation attributable to Riverine Chenopod Woodland (EVC 103), possibly with localised areas of Chenopod Grassland (EVC 829). The paddock is now mostly dominated by annual grasses and herbs with scattered Black Box trees and indigenous chenopod shrubs, grasses and herbs.

A total of four quadrats were sampled within the paddock. Within these quadrats, a total of 39 vascular plant species were recorded, including 21 indigenous and 18 exotic taxa. The quadrats were mostly dominated by exotic grasses and herbs including Wimmera Rye-grass *Lolium rigidum*, Sea Barley-grass *Hordeum marinum* and Burr Medic *Medicago polymorpha*. Native shrubs were generally sparse although had a higher cover in a small area to the north of the paddock represented by quadrat four. Shrubs recorded included Hedge Saltbush *Rhagodia spinescens* and Short-leaf Bluebush *Maireana brevifolia*. Indigenous grasses and herbs were very sparsely present and included Knotty Spear-grass *Austrostipa nodosa*, Paper Sunray *Rhodanthe corymbiflora* and Woolly New Holland Daisy *Vittadinia gracilis*.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	7	2.5
Exotic Shrub	0	0
Prostrate Shrub	2	0.5 - 1
Herb	9	1.2
Exotic Herb	12	13.7
Tussock Grass	3	0.5 - 1
Exotic Tussock Grass	5	33.7
Sedge/Rush	0	0
Geophyte	0	0
Exotic Geophyte	1	1.2
Scrambler/Climber	0	9
Soil Crust	NA	9
Bare Ground	NA	35
Litter	NA	15

Table 2. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock FOSC 2.1



<p>Key: Quadrat location and number</p> <p> Paddock Boundary</p> <p>GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).</p>	<p>0 37.5 75 150 225 300 375 450 Meters</p> <p>Prepared by Greg Waddell Accredited DEPI Assessor Date: 29/11/2013</p> <p style="text-align: right;">N ↑</p>
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FOSC2.1 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	2	6	9	0	4	0	0	1	0	0	NA	NA
%foliage Cover	2	0	^	^	15	0	25	0	0	^	0	0	35	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter. += <0.5% cover, ^ = 0.5- <1% cover

Other attributes

Flood Score	4 (poor)
Soil type	Brown
Average vegetation height	< 30cm

FOSC2.1 Quadrat 2



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	3	0	2	3	3	0	2	0	0	0	0	0	NA	NA
%foliage Cover	+	0	^	^	15	0	70	0	0	0	0	0	5	10

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Brown
Average vegetation height	< 30cm– with sparse shrubs to 1m

FOSC2.1 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	B G	L
Diversity	5	0	1	6	8	2	3	0	0	1	0	0	NA	NA
%foliage Cover	2	0	^	2	10	^	20	0	0	5	0	0	50	15

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey
Average vegetation height	< 30cm

FOSC2.1 Quadrat 4



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	1	6	6	1	4	0	0	1	0	0	NA	NA
%foliage Cover	6	0	^	3	15	^	20	0	0	+	0	0	50	15

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey
Average vegetation height	< 30cm – with scattered shrubs to 1m

3.2 Paddock FOSC3.2

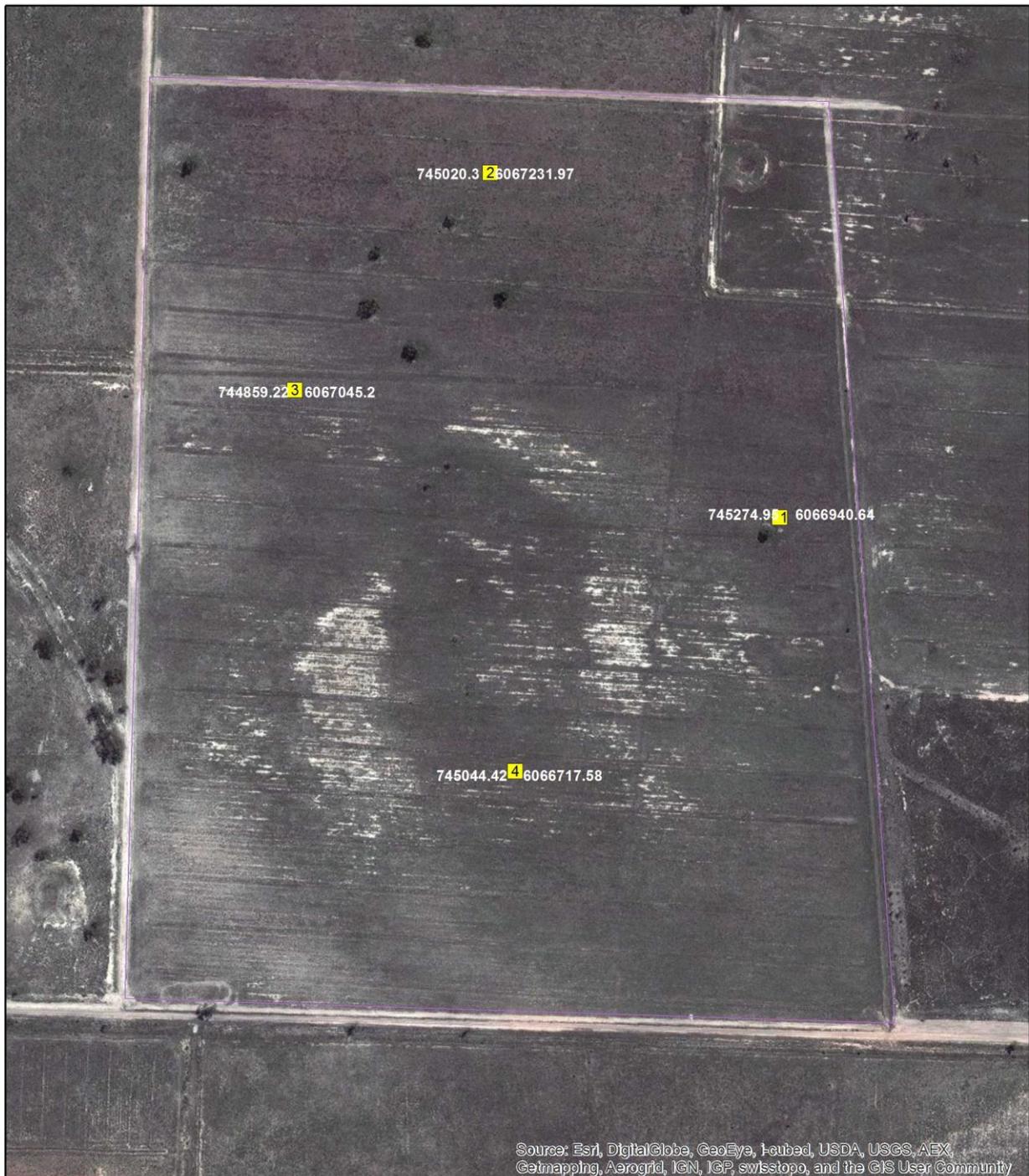
Paddock FOSC3.2 is a 48ha grazing cell that lies centrally within 1000ha of grazing and biodiversity lands comprising the 'Five-On-Seven' block. The site is located approximately eight kilometers south-east of the township of Lake Boga. Prior to clearance, the site would probably have supported Riverine Chenopod Woodland (EVC 103). Online EVC mapping provided by Department of Environment and Primary Industries (DEPI) also show Ridged Plains Mallee (EVC 96) and Plains Savannah (EVC 826) mapped nearby but no evidence of these vegetation types were observed. The paddock is now mostly dominated by annual grasses and herbs with scattered Black Box trees and indigenous chenopod shrubs, grasses and herbs.

A total of four quadrats were sampled within the paddock. Within these quadrats, a total of 32 vascular plant species were recorded, including 18 indigenous and 14 exotic taxa. The quadrats were mostly dominated by annual grasses and herbs including Wimmera Rye-grass **Lolium rigidum*, Barley-grass **Hordeum leporinum*, London Rocket **Sisymbrium irio* and Burr Medic **Medicago polymorpha* with scattered indigenous shrubs such as Hedge Saltbush *Rhagodia spinescens*, Grey Roly-poly *Sclerolaena muricata* var. *villosa* and Short-leaf Bluebush *Maireana brevifolia*. Indigenous herbs were scattered at low density and included Rosinweed *Cressa australis*, Pale Beauty-heads *Calocephalus sonderi*, Slender Groundsel *Senecio glossanthus*, Paper Sunray *Rhodanthe corymbiflora* and Woolly New Holland Daisy *Vittadinia gracilis*. Native grasses were at very low frequency with only one species recorded, that being Common Blown-grass *Lachnagrostis filiformis* var. 1.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	6	2.2
Exotic Shrub	0	0
Prostrate Shrub	2	0.5 - 1
Herb	9	^
Exotic Herb	9	12.5
Tussock Grass	1	0.5 - 1
Exotic Tussock Grass	4	43.7
Sedge/Rush	0	0
Geophyte	0	0
Exotic Geophyte	1	< 0.5
Scrambler/Climber	0	0
Soil Crust	NA	0
Bare Ground	NA	25.5
Litter	NA	27.5

Table 3. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock FOSC 3.2



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- Key:
- Quadrat location and number
 - Paddock Boundary

GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).



Prepared by Greg Waddell
Accredited DEPI Assessor
Date: 29/11/2013



FOSC3.2 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	6	0	2	2	7	0	7	0	0	0	0	0	NA	NA
%foliage Cover	2	0	^	^	15	0	25	0	0	0	0	0	30	30

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey cracking clay
Average vegetation height	25cm

FOSC3.2 Quadrat 2



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	1	3	5	0	2	0	0	0	0	0	NA	NA
%foliage Cover	3	0	^	^	^	0	90	0	0	0	0	0	2	40

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey cracking clay
Average vegetation height	20cm with scattered shrubs to 1m

FOSC3.2 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	1	7	5	0	2	0	0	1	0	0	NA	NA
%foliage Cover	^	0	^	^	30	0	15	0	0	^	0	0	40	15

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (very poor)
Soil type	Grey cracking clay
Average vegetation height	20cm

FOSC3.2 Quadrat 4



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	5	0	0	2	6	1	3	0	0	0	0	0	NA	NA
%foliage Cover	4	0	0	^	5	^	45	0	0	0	0	0	30	25

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey cracking clay
Average vegetation height	25cm with scattered shrubs to 1m

3.3 Paddock FOSC4.2

Paddock FOSC4.2 is a 33ha grazing cell that lies on the eastern margin of 1000ha of grazing and biodiversity lands comprising the 'Five-On-Seven' block. The site is located approximately nine kilometers south-east of the township of Lake Boga. Prior to clearance, the site would probably have supported Riverine Chenopod Woodland (EVC 103). The paddock is now mostly dominated by annual grasses and herbs with scattered indigenous chenopod shrubs, grasses and herbs.

A total of four quadrats were sampled within the paddock. Within these quadrats, a total of 32 vascular plant species were recorded, including 17 indigenous and 15 exotic taxa. The quadrats were typically dominated by swards of annual grasses and herbs including Wimmera Rye-grass **Lolium rigidum*, Wire-weed **Polygonum aviculare*, Sea Barley-grass **Hordeum marinum*, Burr Medic **Medicago polymorpha*, Sweet Melilot **Melilotus indicus* and London Rocket **Sisymbrium irio*. Indigenous species were mostly restricted to scattered chenopods such as Ruby Salt-bush *Enchylaena tomentosa* (shrubby form), Hedge Saltbush *Rhagodia spinescens*, Grey Roly-poly *Sclerolaena muricata* var. *villosa* and Short-leaf Bluebush *Maireana brevifolia*. Indigenous herbs were generally uncommon and included Cotton Fireweed *Senecio quadridentatus*, Slender Groundsel *Senecio glossanthus* and Woolly New Holland Daisy *Vittadinia gracilis*. Native grasses were also uncommon and included Spider-grass *Enteropogon acicularis* and Rigid Panic *Walwhalleya proluta*.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	6	0.5 - 1
Exotic Shrub	0	0
Prostrate Shrub	2	0.5 - 1
Herb	7	0.5 - 1
Exotic Herb	8	35
Tussock Grass	2	< 0.5
Exotic Tussock Grass	4	45
Sedge/Rush	0	0
Geophyte	0	0
Exotic Geophyte	2	< 0.5
Scrambler/Climber	0	0
Soil Crust	NA	0
Bare Ground	NA	6.2
Litter	NA	21.2

Table 4. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock FOSC 4.2



<p>Key:</p> <p> Quadrat location and number</p> <p> Paddock Boundary</p> <p>GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).</p>	<p>0 37.5 75 150 225 300 375 450 Meters</p> <p>Prepared by Greg Waddell Accredited DEPI Assessor Date: 29/11/2013</p> <p style="text-align: right;">N </p>
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FOSC4.2 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	2	6	8	2	2	0	0	1	0	0	NA	NA
%foliage Cover	^	0	^	1	25	^	50	0	0	^	0	0	10	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey cracking clays
Average vegetation height	<30cm

FOSC4.2 Quadrat 2



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	2	3	2	0	2	0	0	0	0	0	NA	NA
%foliage Cover	^	0	^	^	50	0	35	0	0	0	0	0	5	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey cracking clays
Average vegetation height	<30cm

FOSC4.2 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	B G	L
Diversity	2	0	2	2	4	0	2	0	0	1	0	0	NA	NA
%foliage Cover	^	0	^	^	50	0	35	0	0	+	0	0	5	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey cracking clays
Average vegetation height	<30cm

FOSC4.2 Quadrat 4



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	5	0	2	3	3	0	3	0	0	1	0	0	NA	NA
%foliage Cover	1	0	^	^	15	0	60	0	0	+	0	0	5	25

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (poor)
Soil type	Grey cracking clays
Average vegetation height	<30cm

3.4 Paddock FOSC7

Paddock FOSC7 is a 34ha protected biodiversity paddock on the 'Five-On-Seven' block that is located approximately eight kilometers south-east of the township of Lake Boga. Prior to clearance, the site would probably have supported Riverine Chenopod Woodland (EVC 103), possibly with localised areas of Chenopod Grassland (EVC 829). The paddock is now dominated by annual grasses and herbs with scattered Black Box trees and indigenous chenopod shrubs, grasses and herbs.

A total of five quadrats were sampled throughout the paddock. Within these quadrats, a total of 37 vascular plant species were recorded, including 18 indigenous and 19 exotic taxa. The quadrats were typically dominated by swards of exotic herbs and grasses including Wimmera Rye-grass **Lolium rigidum*, Mediterranean Barley-grass **Hordeum hystrix*, Sea Barley-grass **Hordeum marinum*, Burr Medic **Medicago polymorpha*, Scorzonera **Scorzonera laciniata*, Small-flowered Mallow **Malva parviflora*, Prickly Lettuce **Lactuca serriola*, Rough Sow-thistle **Sonchus asper* and London Rocket **Sisymbrium irio*. Indigenous shrubs were prominent in some quadrats and included scattered chenopod shrubs such as Corky Saltbush *Atriplex lindleyi*, Ruby Salt-bush *Enchylaena tomentosa* (shrubby form), Hedge Saltbush *Rhagodia spinescens*, Grey Roly-poly *Sclerolaena muricata* var. *villosa* and Short-leaf Bluebush *Maireana brevifolia*. Indigenous herbs were generally uncommon and included Paper Sunray *Rhodanthe corymbiflora*, Slender Groundsel *Senecio glossanthus* and Woolly New Holland Daisy *Vittadinia gracilis*. Only one native grass species was observed, that being Mallee Love-grass *Eragrostis dielsii*.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	6	1.2
Exotic Shrub	0	0
Prostrate Shrub	2	0.5 - 1
Herb	8	0.5 - 1
Exotic Herb	14	13
Tussock Grass	2	< 0.5
Exotic Tussock Grass	5	57.4
Sedge/Rush	0	0
Geophyte	0	0
Exotic Geophyte	0	0
Scrambler/Climber	0	0
Soil Crust	NA	21
Bare Ground	NA	7
Litter	NA	19

Table 5. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock FOSC 7



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AEX, Geomapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Key:</p> <ul style="list-style-type: none"> Quadrat location and number Paddock Boundary <p>GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).</p>	<div style="text-align: center;"> <p>0 25 50 100 150 200 250 300 350 Meters</p> </div> <div style="text-align: right; margin-top: 20px;"> <p>N</p> </div> <div style="text-align: center; margin-top: 20px;"> <p>Prepared by Greg Waddell Accredited DEPI Assessor Date: 29/11/2013</p> </div>
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FOSC7 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	3	0	0	4	4	1	3	0	0	0	0	NA	NA	NA
%foliage Cover	1	0	0	^	35	^	7	0	0	0	0	35	15	15

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 20cm

FOSC7 Quadrat 2



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	5	0	1	2	4	0	2	0	0	0	0	NA	NA	NA
%foliage Cover	3	0	^	^	2	0	70	0	0	0	0	10	5	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm

FOSC7 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	B G	L
Diversity	3	0	2	3	7	0	4	0	0	0	0	NA	NA	NA
%foliage Cover	+	0	^	^	3	0	75	0	0	0	0	20	5	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm

FOSC7 Quadrat 4



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	3	0	1	4	7	0	3	0	0	0	0	NA	NA	NA
%foliage Cover	1	0	^	+	15	0	65	0	0	0	0	25	5	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 40cm

FOSC7 Quadrat 5



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	2	3	7	1	3	0	0	0	0	NA	NA	NA
%foliage Cover	1	0	^	^	10	^	70	0	0	0	0	15	5	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 40cm

3.5 Paddock FPAG10

Paddock FPAG10 is a narrow biodiversity paddock of 2.5ha that is situated adjacent to a deep meander of the Little Murray River. The study area was extended north of the current boundary to include quadrat four as requested by David Heislars. The site is located approximately nine kilometers north-east of the township of Lake Boga. The original vegetation of the site is mapped as Riverine Chenopod Woodland (EVC 103), but it is also possible that Riverine Grassy Woodland (EVC 295) would have occurred. The paddock is now treeless with an understorey dominated by exotic and indigenous grasses, herbs and chenopod shrubs. Photos taken of the site on the 9th of November 2012 as well as other observations by Kilter staff indicate that the site formerly carried a relatively high cover of Wallaby Grass *Rytidosperma* spp. However during the current assessment this grass was only scattered through the site and many dead tussocks were observed. It is possible that herbicide drift from the adjacent paddock to the west has occurred and this should be investigated.

A total of four quadrats were sampled throughout the paddock. Within these quadrats, a total of 37 vascular plant species were recorded, including 18 indigenous and 19 exotic taxa. The quadrats were typically dominated by swards of exotic herbs and grasses. Native grasses were generally sparse across the paddock, with small patches having good cover. Species diversity was low with only *Rytidosperma setaceum* and Spider-grass *Enteropogon acicularis* recorded. Exotic grasses and herbs dominated many areas including Wimmera Rye-grass *Lolium rigidum*, Sea Barley-grass *Hordeum marinum*, Burr Medic *Medicago polymorpha*, Cluster Clover *Trifolium glomeratum*, Woolly Clover *Trifolium tomentosum*, Small-flowered Mallow *Malva parviflora*, Prickly Lettuce *Lactuca serriola* and Rough Sow-thistle *Sonchus asper*. Indigenous chenopod shrubs were scattered sparsely throughout and included Black Roly-poly *Sclerolaena muricata* var. *muricata*, Corky Saltbush *Atriplex lindleyi*, Ruby Salt-bush *Enchylaena tomentosa* (shrubby form), and Short-leaf Bluebush *Maireana brevifolia*. Indigenous herbs were generally uncommon and included Sieber Crassula *Crassula sieberiana*, Paper Sunray *Rhodanthe corymbiflora*, Slender Groundsel *Senecio glossanthus*, Annual Cudweed *Euchiton sphaericus* and Woolly New Holland Daisy *Vittadinia gracilis*.

During the survey a small group of threatened Grey-crowned Babblers were observed adjacent to the site on the eastern side of the Little Murray River.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	5	1.2
Exotic Shrub	1	< 0.5
Prostrate Shrub	2	0.5 - 1
Herb	10	0.5 - 1
Exotic Herb	10	4
Tussock Grass	2	10
Exotic Tussock Grass	6	49.2
Sedge/Rush	0	0
Geophyte	0	0
Exotic Geophyte	0	0
Scrambler/Climber	0	0
Soil Crust	NA	13.7
Bare Ground	NA	7.5
Litter	NA	30

Table 6. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock FPAG10



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AEX, Geomapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Key:  Quadrat location and number
 Paddock Boundary

GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).

0 25 50 100 150 200 250
 Meters

Prepared by Greg Waddell
 Accredited DEPI Assessor
 Date: 29/11/2013



FPAG10 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	2	1	2	3	4	2	4	0	0	0	0	NA	NA	NA
%foliage Cover	^	^	+	+	5	10	50	0	0	0	0	20	5	25

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 40cm

FPAG10 Quadrat 2



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	B G	L
Diversity	4	0	2	7	7	2	2	0	0	0	0	NA	NA	NA
%foliage Cover	+	0	^	1	5	25	2	0	0	0	0	20	10	40

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	3 (Moderate)
Soil type	Grey cracking clays
Average vegetation height	< 20cm

FPAG10 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	1	1	2	2	4	0	0	0	0	NA	NA	NA
%foliage Cover	3	0	^	^	+	5	80	0	0	0	0	5	5	30

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 40cm with scattered shrubs less than 1m

FPAG10 Quadrat 4



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	3	0	2	4	5	2	2	0	0	0	0	NA	NA	NA
%foliage Cover	2	0	^	1	1	^	65	0	0	0	0	10	10	25

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 40cm with scattered shrubs less than 1m

3.6 Paddock GMC07

Paddock GMC07 is an actively restored grazing paddock of 60ha is located approximately 6.5 kilometers north-east of the township of Lake Boga. Prior to clearance, the site would probably have supported Riverine Chenopod Woodland (EVC 103) in mosaic with areas of Chenopod Grassland (EVC 829). The paddock is now dominated by annual grasses and herbs with scattered indigenous chenopod shrubs, grasses and herbs. A relatively small area in the south-western section carries more diverse indigenous vegetation that has probably survived by being excluded from irrigation. This area supports intact remnants of Chenopod Grassland. A lower lying saline area to the north of this area is now dominated by Samphire Shrubland (EVC 101).

A total of five quadrats were sampled throughout the paddock. Within these quadrats, a total of 43 vascular plant species were recorded, including 25 indigenous and 18 exotic taxa. The quadrats were typically dominated by swards of exotic herbs and grasses including Wimmera Rye-grass **Lolium rigidum*, Sea Barley-grass **Hordeum marinum*, Burr Medic **Medicago polymorpha*, Small Ice-plant **Mesembryanthemum nodiflorum*, Wire-weed **Polygonum aviculare*, Common Pepper-cress **Lepidium africanum*, Prickly Lettuce **Lactuca serriola* and Rough Sow-thistle **Sonchus asper*. Indigenous shrubs were scattered throughout and included Short-leaf Bluebush *Maireana brevifolia*, Grey Roly-poly *Sclerolaena muricata* var. *villosa*, Ruby Salt-bush *Enchylaena tomentosa* (shrubby form) and Hedge Saltbush *Rhagodia spinescens*. Indigenous herbs were generally uncommon. Quadrat 2 was distinct from the remaining quadrats and supported a higher diversity of indigenous species. This quadrat was dominated by Spiny Lignum *Duma horrida* (formerly *Muehlenbeckia horrida*) listed as Rare in Victoria, Ruby Saltbush *Enchylaena tomentosa* (shrubby form), Star Bluebush *Stelligera endecaspinis*, Short-leaf Bluebush *Maireana brevifolia*, Dillon Bush *Nitraria billardieri* and Sago Bush *Maireana pyramidata*. The groundflora had a good cover of soil crust, native annuals and small perennials including Paper Sunray *Rhodanthe corymbiflora*, Salt Sea-spurrey *Spergularia* sp. 3, Slender Groundsel *Senecio glossanthus*, Rosinweed *Cressa australis* and Clay Plantain *Plantago cunninghamii*. This quadrat also carried a good cover of Bristly Wallaby-grass *Rytidosperma setaceum*. Quadrat 3 (Samphire Shrubland) has a high cover of one native shrub, Blackseed Glasswort *Tecticornia pergranulata* subsp. *Pergranulata*, with other lifeforms sparsely present.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	10	11.4
Exotic Shrub	1	< 0.5
Prostrate Shrub	3	< 0.5
Herb	9	< 0.5
Exotic Herb	10	3.2
Tussock Grass	3	3
Exotic Tussock Grass	7	53.2
Sedge/Rush	0	0
Geophyte	0	0
Exotic Geophyte	0	0
Scrambler/Climber	0	0
Soil Crust	NA	8
Bare Ground	NA	26
Litter	NA	28.2

Table 7. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock GMC 07



<p>Key:</p> <p> Quadrat location and number</p> <p> Paddock Boundary</p> <p>GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).</p>	<p>0 50 100 200 300 400 500 Meters</p> <p>Prepared by Greg Waddell Accredited DEPI Assessor Date: 29/11/2013</p> <p style="text-align: right;">N ↑</p>
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GMC07 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	2	3	6	0	3	0	0	0	0	NA	NA	NA
%foliage Cover	2	0	^	^	^	0	85	0	0	0	0	10	10	50

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 40cm with scattered shrubs to 1m

GMC07 Quadrat 2



Lifeform data

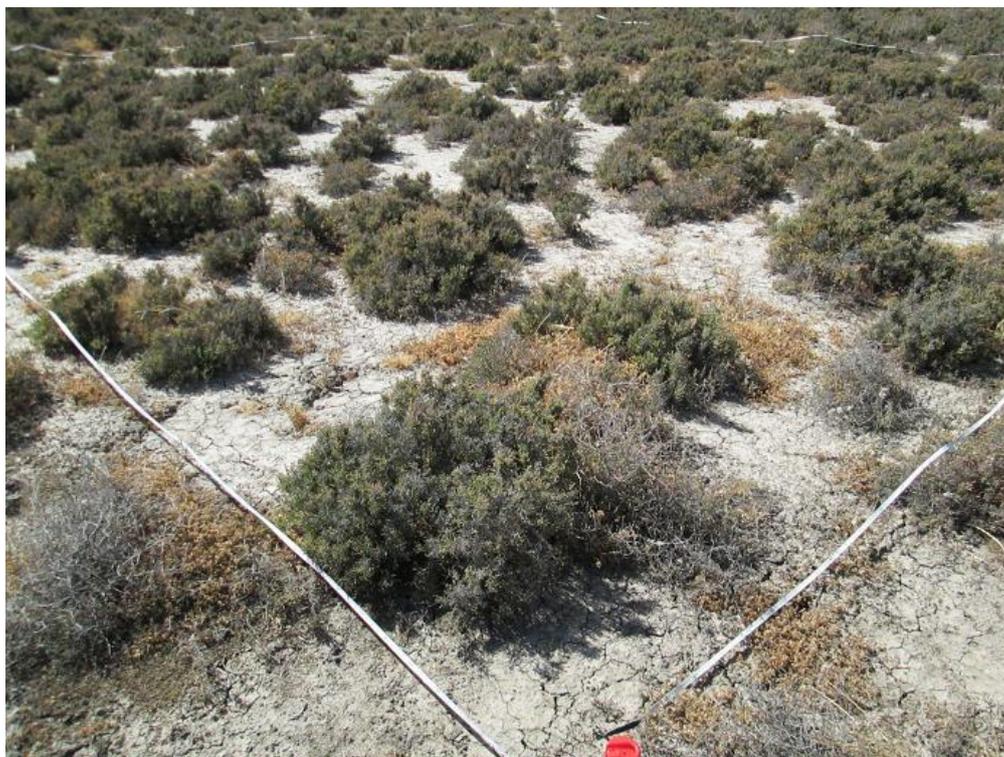
Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	B G	L
Diversity	9	1	2	6	5	2	2	0	0	0	0	NA	NA	NA
%foliage Cover	15	1	1	2	+	15	15	0	0	0	0	30	40	20

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	2 (Good)
Soil type	Grey cracking clays
Average vegetation height	< 20cm with scattered shrubs to 1.5m

GMC07 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	3	0	2	2	2	2	4	0	0	0	0	NA	NA	NA
%foliage Cover	40	0	^	^	10	^	1	0	0	0	0	0	50	1

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 50cm

GMC07 Quadrat 4



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	3	1	1	2	2	0	3	0	0	0	0	NA	NA	NA
%foliage Cover	^	^	^	^	1	0	80	0	0	0	0	0	20	30

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm

GMC07 Quadrat 5



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	2	0	2	6	2	0	3	0	0	0	0	NA	NA	NA
%foliage Cover	+	0	^	^	5	0	85	0	0	0	0	0	10	30

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm with scattered shrubs less than 1m

3.7 Paddock GMGP2.1

Paddock GMGP2.1 is an actively restored grazing paddock of 15ha that is located approximately seven kilometers north-east of the township of Lake Boga. Prior to clearance, the site would probably have supported Riverine Chenopod Woodland (EVC 103). The paddock is now treeless and dominated by annual grasses and herbs with scattered indigenous chenopod shrubs, grasses and herbs. Parts of the paddock, particularly the south-eastern section, were dominated by Lucerne **Medicago sativa* which was previously sown throughout the site.

A total of three quadrats were sampled throughout the paddock. Within these quadrats, a total of 21 vascular plant species were recorded, including 10 indigenous and 11 exotic taxa. The quadrats were mostly dominated by exotic grasses and herbs including Wimmera Rye-grass **Lolium rigidum*, Lucerne **Medicago sativa*, Burr Medic **Medicago polymorpha*, Scorzonera **Scorzonera laciniata*, Small-flowered Mallow **Malva parviflora* and Wire-weed **Polygonum aviculare*. Indigenous species were restricted to scattered chenopod shrubs such as Ruby Salt-bush *Enchylaena tomentosa* (shrubby form), Hedge Saltbush *Rhagodia spinescens* and Grey Roly-poly *Sclerolaena muricata* var. *villosa* with a sparse cover of herbs such as Paper Sunray *Rhodanthe corymbiflora* and Slender Groundsel *Senecio glossanthus*. Only one native grass species was observed, that being Spider-grass *Enteropogon acicularis*.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	3	0.5 - 1
Exotic Shrub	1	< 0.5
Prostrate Shrub	2	0.5 - 1
Herb	4	0.5 - 1
Exotic Herb	7	8.3
Tussock Grass	1	0.5 - 1
Exotic Tussock Grass	3	66.6
Sedge/Rush	0	0
Geophyte	0	0
Exotic Geophyte	0	0
Scrambler/Climber	0	0
Soil Crust	NA	0
Bare Ground	NA	26.6
Litter	NA	15

Table 8. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock GMGP 2.1



<p>Key:</p> <p> Quadrat location and number</p> <p> Paddock Boundary</p> <p>GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).</p>	<p>0 25 50 100 150 200 250 Meters</p> <p>Prepared by Greg Waddell Accredited DEPI Assessor Date: 29/11/2013</p> <p style="text-align: right;">N ↑</p>
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GMGP2.1 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	3	1	2	1	2	1	2	0	0	0	0	NA	NA	NA
%foliage Cover	^	^	^	^	^	2	65	0	0	0	0	0	35	15

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm

GMGP2.1 Quadrat 2



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	B G	L
Diversity	2	0	1	1	2	0	1	0	0	0	0	0	NA	NA
%foliage Cover	^	0	^	^	5	0	70	0	0	0	0	0	30	15

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm

GMGP2.1 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	3	0	2	3	6	0	2	0	0	0	0	0	NA	NA
%foliage Cover	^	0	^	^	20	0	65	0	0	0	0	0	15	15

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm with scattered Lucerne to 50cm

3.8 Paddock JCR02

Paddock JCR02 is an actively restored grazing paddock of 40ha protected biodiversity paddock that is located approximately 9.5 east of the township of Lake Boga. Prior to clearance, the site would probably have supported Riverine Chenopod Woodland (EVC 103). The paddock is now treeless and dominated by annual grasses and herbs with scattered indigenous chenopod shrubs, grasses and herbs.

A total of four quadrats were sampled throughout the paddock. Within these quadrats, a total of 30 vascular plant species were recorded, including 17 indigenous and 13 exotic taxa. The quadrats were dominated by exotic grasses and herbs including Wimmera Rye-grass **Lolium rigidum*, Barley-grass **Hordeum leporinum*, Wild Oats **Avena barbata*, Burr Medic **Medicago polymorpha*, Lesser Sand-spurrey **Spergularia diandra*, Small-flowered Mallow **Malva parviflora*, Small Ice-plant **Mesembryanthemum nodiflorum*, Prickly Lettuce **Lactuca serriola*, Rough Sow-thistle **Sonchus asper* and London Rocket **Sisymbrium irio*. Indigenous shrubs were scattered sparsely throughout and included Corky Saltbush *Atriplex lindleyi*, Mealy Saltbush *Atriplex pseudocampanulata*, Ruby Saltbush *Enchylaena tomentosa* (shrubby form), Hedge Saltbush *Rhagodia spinescens*, Old Man Saltbush *Atriplex nummularia*, Grey Roly-poly *Sclerolaena muricata* var. *villosa* and Short-leaf Bluebush *Maireana brevifolia*. Indigenous herbs were generally uncommon and included Paper Sunray *Rhodanthe corymbiflora*, Bone-fruit *Osteocarpum salsugineum*, Slender Groundsel *Senecio glossanthus* and Woolly New Holland Daisy *Vittadinia gracilis*. Native grasses were very sparse and included scattered Bristle Wallaby-grass *Rytidosperma setaceum*, Salt-grass *Puccinellia stricta* and Rigid Panic *Walwhalleya proluta*.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	6	1.75
Exotic Shrub	0	0
Prostrate Shrub	2	0.5 - 1
Herb	5	0.5 - 1
Exotic Herb	9	4
Tussock Grass	3	0.5 - 1
Exotic Tussock Grass	5	72.5
Sedge/Rush	0	0
Geophyte	0	0
Exotic Geophyte	0	0
Scrambler/Climber	0	0
Soil Crust	NA	0
Bare Ground	NA	23.7
Litter	NA	12.5

Table 9. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock JCR 02



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Key: Quadrat location and number
 Paddock Boundary

GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).



Prepared by Greg Waddell
 Accredited DEPI Assessor
 Date: 29/11/2013



JCR02 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	1	2	3	1	2	0	0	0	0	NA	NA	NA
%foliage Cover	1	0	^	^	^	^	90	0	0	0	0	0	10	20

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm with scattered shrubs to 1m

JCR02 Quadrat 2



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	B G	L
Diversity	5	0	1	2	2	0	2	0	0	0	0	NA	NA	NA
%foliage Cover	1	0	^	^	10	0	75	0	0	0	0	0	20	10

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm with scattered shrubs to 1m

JCR02 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	1	2	3	1	2	0	0	0	0	NA	NA	NA
%foliage Cover	^	0	^	^	1	^	75	0	0	0	0	0	25	10

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm

JCR02 Quadrat 4



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	4	0	1	4	7	1	3	0	0	0	0	NA	NA	NA
%foliage Cover	5	0	^	^	5	^	50	0	0	0	0	0	40	10

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey cracking clays
Average vegetation height	< 30cm with scattered shrubs to 1m

3.9 Paddock KCL03

Paddock KCL03 is a 28ha protected biodiversity paddock that is located six kilometers north-east of Lake Charm. Prior to clearance, the site would probably have supported Riverine Chenopod Woodland (EVC 103), possibly with localised areas of Chenopod Grassland (EVC 829). The paddock is now characterised by scattered large-old Black Box *Eucalyptus largiflorens* with a variable understorey. Large areas were dominated by exotic grasses and herbs while scattered sections were dominated by native grass with sparse herb cover.

A total of five quadrats were sampled throughout the paddock. Within these quadrats, a total of 33 vascular plant species were recorded, including 21 indigenous and 12 exotic taxa. The quadrats were dominated by exotic grasses and herbs including Wimmera Rye-grass **Lolium rigidum*, Sea Barley-grass **Hordeum marinum*, Burr Medic **Medicago polymorpha*, Scorzonera **Scorzonera laciniata*, Small-flowered Mallow **Malva parviflora*, Prickly Lettuce **Lactuca serriola*, Common Peppergrass **Lepidium africanum*, Rough Sow-thistle **Sonchus asper* and London Rocket **Sisymbrium irio*. Several quadrats had a good cover of indigenous grasses, rushes and sedges including Bristly Wallaby-grass *Rytidosperma setaceum*, Leafy Wallaby-grass *Rytidosperma bipartitum*, Brown-back Wallaby-grass *Rytidosperma duttonianum*, Golden Rush *Juncus flavidus* and Knob Sedge *Carex inversa*. Indigenous chenopod shrubs were scattered throughout and included Corky Saltbush *Atriplex lindleyi*, Ruby Salt-bush *Enchylaena tomentosa* (shrubby form), Hedge Saltbush *Rhagodia spinescens*, Grey Roly-poly *Sclerolaena muricata* var. *villosa* and Short-leaf Bluebush *Maireana brevifolia*.

During the survey a small group of threatened Grey Crowned Babblers were observed in the north-western section of the paddock. A male and female pair were heard singing the characteristic duet before the group flew a short distance to the west into the adjacent property.

Lifeform	Total Diversity	Average % foliage Cover
Shrub	2	0.5 - 1
Exotic Shrub	0	0
Prostrate Shrub	1	5.6
Herb	9	0.5 - 1
Exotic Herb	8	1.6
Tussock Grass	7	1.6
Exotic Tussock Grass	4	79
Sedge/Rush	2	< 0.5
Geophyte	0	0
Exotic Geophyte	0	0
Scrambler/Climber	0	< 0.5
Soil Crust	NA	0
Bare Ground	NA	< 0.5
Litter	NA	99

Table 10. showing the total diversity of each lifeform recorded at the site and the average foliage cover of each lifeform.

Kilter Carbon Project Site Aerial Paddock KCL03



bing™

Key: Quadrat location and number

Paddock Boundary

GPS co-ordinates of the northwest corner of the quadrat are displayed in white (Easting to the left, Northing to the right).

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0 25 50 100 150 200 250 300 Meters

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Accredited DEPI Assessor
Date: 29/11/2013

N

KCLO3 Quadrat 1



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	1	0	1	5	4	3	3	2	0	0	1	NA	NA	NA
%foliage Cover	^	0	^	1	+	+	80	1	0	0	^	0	0	100

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey silty-loam
Average vegetation height	< 45cm

KCLO3 Quadrat 2



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	B G	L
Diversity	2	0	1	3	7	5	2	0	0	0	0	NA	NA	NA
%foliage Cover	^	0	1	^	5	2	90	0	0	0	0	0	0	100

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey silty-loam
Average vegetation height	< 45cm

KCLO3 Quadrat 3



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	0	0	1	0	3	1	3	0	0	0	0	NA	NA	NA
%foliage Cover	0	0	4	0	2	^	90	0	0	0	0	0	0	100

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	5 (Very Poor)
Soil type	Grey silty-loam
Average vegetation height	< 45cm

KCLO3 Quadrat 4



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	1	0	1	2	4	3	3	0	0	0	0	NA	NA	NA
%foliage Cover	^	0	3	^	1	5	75	0	0	0	0	0	0	100

S –Shrub, ES*-Exotic Shrub, PS – Prostrate Shrub, H –Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey silty-loam
Average vegetation height	< 45cm

KCLO3 Quadrat 5



Lifeform data

Lifeform	S	ES*	PS	H	EH*	TG	ETG*	S/R	G	EG*	S/C	SC	BG	L
Diversity	1	0	1	5	3	2	2	0	0	0	0	NA	NA	NA
%foliage Cover	1	0	20	^	^	1	60	0	0	0	0	0	5	95

S – Shrub, ES* - Exotic Shrub, PS – Prostrate Shrub, H – Herb, EH* - Exotic Herb, TG – Tussock Grass, ETG* – Exotic Tussock Grass, S/R – Sedge/Rush, G – Geophyte, EG* - Exotic Geophyte, S/C-Scrambler Climber, SC – Soil Crust, BG – Bare Ground, L – Litter.

Other attributes

Flood Score	4 (Poor)
Soil type	Grey silty-loam
Average vegetation height	< 30cm

4.0 CONCLUSIONS AND RECCOMENDATIONS

Vegetation sampling across the nine ex-irrigation paddocks managed by Kilter has provided baseline data on which future change can be compared and analysed. Overall cover of vegetation in each paddock is generally over 70%, although some areas of paddocks are as low as 40%. Litter, which also contributes to the carbon cycle by increasing the overall cover of plant material present, is generally around 20% cover. Most paddocks are dominated by a small group of exotic annual grasses and herbs with scattered chenopod shrubs and occasional Black Box trees in some paddocks. Indigenous ground flora is typically sparse, and restricted to species that have managed to re-colonize since the cessation of irrigation or that have been direct-seeded by Kilter. Diversity is therefore generally low. Some paddocks contain small areas with a good cover of native grasses and herbs, although this is uncommon. All paddocks are in a stage of recovery after being irrigated for many years, which would have removed many of the original indigenous species and modified soil conditions.

The vegetation biomass is likely to vary throughout the year across the study area due to the dominance of exotic annuals. The paddocks would have the highest biomass during the peak growth stage in winter-early-spring, followed by a rapid drying and desiccation of vegetation over the summer period. Biomass is also likely to vary due to rainfall patterns and grazing regimes. The paddocks would likely have a more even biomass level throughout the seasons if they supported a higher cover of both winter active (C3) and summer active (C4) native perennials.

The current survey was undertaken relatively late in spring which made it difficult to identify some plant species. Many species were also either dead or severely desiccated, so the cover estimates are lower than would be found earlier in winter or spring. Due to this, the timing of the baseline dataset must be taken into consideration in future survey planning, and as essential context in survey comparisons. It is recommended that the next survey be undertaken at the same time of year or slightly earlier (within three weeks would be preferable). Surveying during early spring (September-early October) when the vegetation is still green and annual plants are still physiologically active could also be done to provide additional data. Cover estimates can vary between assessors, so to help minimize subjective error it is recommended in future that the same assessors complete the surveys (two assessors also help reduce subjectivity in cover estimates). The marker for each quadrat should be inspected each year and the surveyor pegs touched up with pink/red spray-paint to ensure they remain visible. Any missing pegs or star pickets should be replaced immediately at the exact coordinate provided for the site.

5.0 REFERENCES

DSE (2010b) Victorian Flora State Database, The State of Victoria, Department of Sustainability and Environment (accessed via the 'Flora Information System', [2009, July] - © Viridans Biological Databases). The contribution of the Royal Botanical Gardens to the database is acknowledged.

DSE (2007) Advisory List of Rare or Threatened Vertebrate Fauna in Victoria - 2007. Victorian Department of Sustainability and Environment, East Melbourne, Victoria.

DSE (2005a) Advisory List of Rare or Threatened Plants in Victoria - 2005. Victorian Department of Sustainability and Environment, East Melbourne, Victoria.

Walsh, N.G. and Stajsic, V. (2007) A census of Vascular Plants of Victoria, 8th Edition. National Herbarium of Victoria, Royal Botanic Gardens, Victoria

6.0 Appendix 1 Froud Vegetation Condition Categories

Category 1 (Excellent) - No major identifiable impacts on vegetation condition; vegetation apparently ecologically stable (temporal and spatial variation remaining within the spectrum of possibilities anticipated for unmodified examples of the relevant system); biodiversity losses minimal if any; serious environmental weeds absent; and relatively unmodified in terms of ecological processes.

Category 2 (Good) - Some biodiversity losses within the EVC reasonably presumed or weed invasions impacting on the indigenous vegetation, but system apparently remaining ecologically stable; and only minor modifications to critical ecological processes.

Category 3 (Moderate) - EVC disturbed but still readily identifiable; extinction-prone species mostly displaced but a substantial component of indigenous flora persisting (at least at low levels); serious environmental weeds often present or otherwise significant ecological invasions occurring; and substantial modifications to critical ecological processes.

Category 4 (Poor) - EVC degraded, with only a minor component of original flora persisting; structure of the vegetation substantially modified; serious environmental weeds often prevalent within at least part of the system or significant ecological invasions advanced; and system substantially disrupted due loss of critical ecological processes.

Category 5 (Very Poor) - Indigenous vegetation displaced; introduced species or mixtures including native species from adjacent, non-grassland habitats dominated vegetation; and system effectively displaced due to complete loss of all ecological processes associated with the original ecosystem.

Note: This classification system was developed by Doug Froud (2007) and is unpublished.
<http://www.pathwaysbushland.com.au/index.html>

7.0 Appendix 2 Floristic data collected across quadrats, November 2013

Paddock FOSC2.1							
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
	<i>Atriplex leptocarpa</i>	Slender-fruit Saltbush	Prostrate Shrub	x	x	x	x
	<i>Atriplex lindleyi</i> subsp. <i>inflata</i>	Corky Saltbush	Shrub	x		x	
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate Shrub	x	x		
	<i>Austrostipa nodosa</i>	Knotty Spear-grass	Tussock Grass			x	
*	<i>Avena barbata</i>	Bearded Oat	Exotic Grass				x
*	<i>Brassica tournefortii</i>	Mediterranean Turnip	Exotic Herb				x
*	<i>Capsella bursa-pastoris</i>	Shepherd's Purse	Exotic Herb			x	
	<i>Crassula colorata</i>	Dense Crassula	Herb			x	
	<i>Cressa australis</i>	Rosinweed	Herb	x	x	x	x
	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Shrub			x	x
	<i>Enteropogon acicularis</i>	Spider Grass	Tussock Grass				x
	<i>Euchiton sphaericus</i>	Annual Cudweed	Herb			x	
*	<i>Hordeum leporinum</i>	Barley-grass	Exotic Grass	x		x	x
*	<i>Hordeum marinum</i>	Sea Barley-grass	Exotic Grass	x	x	x	x
*	<i>Lepidium africanum</i>	Common Peppercross	Exotic Herb	x		x	
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x	x
	<i>Maireana brevifolia</i>	Short-leaf Bluebush	Shrub	x	x	x	x
	<i>Maireana decalvans</i>	Black Cotton-bush	Shrub	x	x		
*	<i>Marrubium vulgare</i>	Horehound	Exotic Herb				x
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb	x	x	x	x
*	<i>Mesembryanthemum nodiflorum</i>	Small Ice-plant	Exotic Herb	x		x	x
*	<i>Moraea</i> spp.	Moraea	Exotic Geophyte	x		x	x
	<i>Osteocarpum salsuginosum</i>	Bonefruit	Herb	x			
*	<i>Parapholis strigosa</i>	Slender Barb-grass	Exotic Grass	x			
*	<i>Plantago coronopus</i> subsp.	Buck's-horn Plantain	Exotic Herb			x	

	<i>coronopus</i>						
	<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub		x	x	x
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb	x		x	x
	<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Tussock Grass			x	
	<i>Salsola tragus</i>	Prickly Saltwort	Shrub	x	x	x	x
	<i>Sclerolaena muricata var. villosa</i>	Grey Roly-poly	Shrub	x		x	x
*	<i>Scorzonera laciniata</i>	Scorzonera	Exotic Herb	x			
	<i>Senecio glossanthus s.s.</i>	Slender Groundsel	Herb	x	x	x	x
	<i>Senecio quadridentatus</i>	Cotton Fireweed	Herb				x
*	<i>Sisymbrium irio</i>	London Rocket	Exotic Herb	x	x	x	x
*	<i>Sonchus asper s.s.</i>	Rough Sow-thistle	Exotic Herb	x			x
*	<i>Spergularia diandra</i>	Lesser Sand-spurrey	Exotic Herb	x		x	
*	<i>Trifolium tomentosum var. tomentosum</i>	Woolly Clover	Exotic Herb	x	x	x	x
	<i>Vittadinia cuneata var. cuneata</i>	Fuzzy New Holland Daisy	Herb	x		x	
	<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	Herb				x

Paddock FOSC3.2							
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
*	<i>Asphodelus fistulosus</i>	Onion Weed	Exotic Geophyte			x	
	<i>Atriplex leptocarpa</i>	Slender-fruit Saltbush	Prostrate Shrub	x			
	<i>Atriplex lindleyi subsp. inflata</i>	Corky Saltbush	Shrub	x	x	x	x
	<i>Atriplex pseudocampanulata</i>	Mealy Saltbush	Shrub	x			x
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate Shrub	x	x	x	
*	<i>Avena barbata</i>	Bearded Oat	Exotic Grass	x			
	<i>Calocephalus sonderi</i>	Pale Beauty-heads	Herb			x	
	<i>Cressa australis</i>	Rosinweed	Herb		x	x	
	<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	Shrub	x	x	x	
	<i>Goodenia glauca</i>	Pale Goodenia	Herb		x		
*	<i>Hordeum leporinum</i>	Barley-grass	Exotic Grass	x	x	x	x
*	<i>Hordeum marinum</i>	Sea Barley-grass	Exotic Grass	x			x

	<i>Lachnagrostis filiformis</i> var. 1	Common Blown-grass	Tussock Grass				x
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x	x
	<i>Maireana brevifolia</i>	Short-leaf Bluebush	Shrub	x	x	x	x
*	<i>Malva parviflora</i>	Small-flower Mallow	Exotic Herb	x	x		x
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb	x	x	x	x
*	<i>Melilotus indicus</i>	Sweet Melilot	Exotic Herb			x	x
*	<i>Mesembryanthemum nodiflorum</i>	Small Ice-plant	Exotic Herb	x			x
*	<i>Polygonum aviculare</i> s.s.	Hogweed	Exotic Herb	x	x		
	<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub	x			x
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb			x	
	<i>Salsola tragus</i>	Prickly Saltwort	Herb				x
	<i>Sclerolaena muricata</i> var. <i>villosa</i>	Grey Roly-poly	Shrub	x	x	x	x
*	<i>Scorzonera laciniata</i>	Scorzonera	Exotic Herb	x		x	
	<i>Senecio cunninghamii</i> var. <i>cunninghamii</i>	Branching Groundsel	Herb			x	
	<i>Senecio glossanthus</i> s.s.	Slender Groundsel	Herb	x	x	x	x
*	<i>Sisymbrium irio</i>	London Rocket	Exotic Herb	x	x	x	x
*	<i>Sonchus asper</i> subsp. <i>asper</i>	Rough Sow-thistle	Exotic Herb	x	x	x	
*	<i>Spergularia diandra</i>	Lesser Sand-spurrey	Exotic Herb				x
	<i>Vittadinia cuneata</i> var. <i>cuneata</i>	Fuzzy New Holland Daisy	Herb	x		x	
	<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	Herb			x	

Paddock FOSC4.2							
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
*	<i>Asphodelus fistulosus</i>	Onion Weed	Exotic Geophyte			x	x
	<i>Atriplex leptocarpa</i>	Slender-fruit Saltbush	Prostrate Shrub	x	x	x	x
	<i>Atriplex lindleyi</i> subsp. <i>inflata</i>	Corky Saltbush	Shrub	x	x	x	
	<i>Atriplex pseudocampanulata</i>	Mealy Saltbush	Shrub				x
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate Shrub	x	x	x	x
*	<i>Brassica tournefortii</i>	Mediterranean Turnip	Exotic Herb	x			
*	<i>Bromus hordeaceus</i> subsp. <i>hordeaceus</i>	Soft Brome	Exotic Grass	x			
	<i>Cressa australis</i>	Rosinweed	Herb	x	x		x
	<i>Enchylaena tomentosa</i> var.	Ruby Saltbush	Shrub	x	x		x

	<i>tomentosa</i>						
	<i>Enteropogon acicularis</i>	Spider Grass	Tussock Grass	x			
*	<i>Hordeum leporinum</i>	Barley-grass	Exotic Grass		x		x
*	<i>Hordeum marinum</i>	Sea Barley-grass	Exotic Grass	x		x	x
*	<i>Lepidium africanum</i>	Common Peppercross	Exotic Herb	x			
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x	x
	<i>Maireana brevifolia</i>	Short-leaf Bluebush	Shrub	x	x		x
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb	x	x	x	x
*	<i>Melilotus indicus</i>	Sweet Melilot	Exotic Herb	x		x	x
*	<i>Polygonum aviculare s.s.</i>	Hogweed	Exotic Herb	x	x	x	
	<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub				x
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb	x	x	x	
*	<i>Romulea minutiflora</i>	Small-flower Onion-grass	Exotic Geophyte	x			
	<i>Salsola tragus</i>	Prickly Saltwort	Herb	x			x
	<i>Sclerolaena muricata var. villosa</i>	Grey Roly-poly	Shrub	x	x	x	x
*	<i>Scorzonera laciniata</i>	Scorzonera	Exotic Herb	x			
	<i>Senecio glossanthus s.s.</i>	Slender Groundsel	Herb		x	x	x
	<i>Senecio quadridentatus</i>	Cotton Fireweed	Herb	x			
*	<i>Sisymbrium irio</i>	London Rocket	Exotic Herb	x		x	x
*	<i>Sonchus asper subsp. asper</i>	Rough Sow-thistle	Exotic Herb	x			
	<i>Vittadinia cuneata var. cuneata</i>	Fuzzy New Holland Daisy	Herb	x			
	<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	Herb	x			
	<i>Walwhalleya prolata</i>	Rigid Panic	Tussock Grass	x			

Paddock FOSC7								
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5
	<i>Atriplex eardleyae</i>	Small Saltbush	Shrub			x		
	<i>Atriplex leptocarpa</i>	Slender-fruit Saltbush	Prostrate Shrub			x	x	x
	<i>Atriplex lindleyi subsp. inflata</i>	Corky Saltbush	Shrub	x	x	x	x	x
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate Shrub		x			x

*	<i>Avena barbata</i>	Bearded Oat	Exotic Grass	x		x	x	
*	<i>Conyza bonariensis</i>	Flaxleaf Fleabane	Exotic Herb			x		x
	<i>Cressa australis</i>	Rosinweed	Herb	x	x	x	x	x
	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Shrub	x	x	x		x
	<i>Enteropogon acicularis</i>	Spider Grass	Tussock Grass					x
	<i>Eragrostis dielsii</i>	Mallee Love-grass	Tussock Grass	x				
	<i>Euchiton sphaericus</i>	Annual Cudweed	Herb			x		
*	<i>Hordeum glaucum</i>	Northern Barley-grass	Exotic Grass			x		x
*	<i>Hordeum hystrix</i>	Mediterranean Barley-grass	Exotic Grass	x			x	
*	<i>Hordeum leporinum</i>	Barley-grass	Exotic Grass	x	x	x	x	x
*	<i>Lactuca serriola</i>	Prickly Lettuce	Exotic Herb			x		x
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x	x	x
	<i>Maireana brevifolia</i>	Short-leaf Bluebush	Shrub		x	x		x
*	<i>Malva parviflora</i>	Small-flower Mallow	Exotic Herb		x			
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb	x	x	x	x	x
*	<i>Melilotus indicus</i>	Sweet Melilot	Exotic Herb	x				
*	<i>Mesembryanthemum crystallinum</i>	Common Ice-plant	Exotic Herb				x	
*	<i>Mesembryanthemum nodiflorum</i>	Small Ice-plant	Exotic Herb				x	
*	<i>Polygonum aviculare</i> s.s.	Hogweed	Exotic Herb			x		x
	<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub		x		x	
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb	x			x	
	<i>Salsola tragus</i> subsp. <i>tragus</i>	Prickly Saltwort	Herb		x			
	<i>Sclerolaena muricata</i> var. <i>villosa</i>	Grey Roly-poly	Shrub	x	x		x	x
*	<i>Scorzonera laciniata</i>	Scorzonera	Exotic Herb	x		x		x
	<i>Senecio glossanthus</i> s.s.	Slender Groundsel	Herb				x	x
	<i>Senecio quadridentatus</i>	Cotton Fireweed	Herb			x		
*	<i>Sisymbrium irio</i>	London Rocket	Exotic Herb		x	x	x	
*	<i>Sonchus asper</i> s.s.	Rough Sow-thistle	Exotic Herb	x				
*	<i>Sonchus asper</i> s.s.	Rough Sow-thistle	Exotic Herb		x		x	x
*	<i>Sonchus oleraceus</i>	Common Sow-thistle	Exotic Herb			x		
*	<i>Spergularia diandra</i>	Lesser Sand-spurrey	Exotic Herb				x	
	<i>Vittadinia cuneata</i>	Fuzzy New Holland Daisy	Herb	x				x

	<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	Herb	x			
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Paddock FPAG10							
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
	<i>Atriplex leptocarpa</i>	Slender-fruit Saltbush	Prostrate Shrub	x	x		x
	<i>Atriplex lindleyi subsp. inflata</i>	Corky Saltbush	Shrub		x		
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate Shrub	x	x	x	x
*	<i>Avena barbata</i>	Bearded Oat	Exotic Grass		x		
*	<i>Bromus diandrus</i>	Great Brome	Exotic Grass			x	
*	<i>Bromus rubens</i>	Red Brome	Exotic Grass			x	
*	<i>Cotula bipinnata</i>	Ferny Cotula	Exotic Herb	x	x		
	<i>Crassula colorata</i>	Dense Crassula	Herb		x		
	<i>Crassula sieberiana s.s.</i>	Sieber Crassula	Herb		x		
	<i>Einadia nutans subsp. nutans</i>	Nodding Saltbush	Herb	x			x
	<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	Shrub		x	x	x
	<i>Enteropogon acicularis</i>	Spider Grass	Tussock Grass	x	x	x	
*	<i>Erodium cicutarium</i>	Common Heron's-bill	Exotic Herb	x			
	<i>Euchiton sphaericus</i>	Annual Cudweed	Herb		x		
*	<i>Hordeum marinum</i>	Sea Barley-grass	Exotic Grass	x		x	x
*	<i>Lactuca serriola</i>	Prickly Lettuce	Exotic Herb		x		
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x	x
*	<i>Lycium ferocissimum</i>	African Box-thorn	Exotic Shrub	x		x	
	<i>Maireana brevifolia</i>	Short-leaf Bluebush	Shrub	x	x	x	
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb	x	x	x	x
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb	x	x	x	
	<i>Oxalis perennans</i>	Grassland Wood-sorrel	Herb				x
*	<i>Polygonum aviculare s.s.</i>	Hogweed	Exotic Herb		x		x
	<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub			x	x
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb	x	x		x
	<i>Rytidosperma setaceum var. setaceum</i>	Bristly Wallaby-grass	Tussock Grass	x	x	x	x
	<i>Sclerolaena muricata var.</i>	Dark Roly-poly	Shrub	x	x	x	x

	<i>semiglabra</i>						
	<i>Senecio glossanthus s.s.</i>	Slender Groundsel	Herb	x	x		x
	<i>Senecio quadridentatus</i>	Cotton Fireweed	Herb		x		x
*	<i>Sonchus asper s.s.</i>	Rough Sow-thistle	Exotic Herb	x	x	x	x
*	<i>Sonchus oleraceus</i>	Common Sow-thistle	Exotic Herb				x
*	<i>Trifolium glomeratum</i>	Cluster Clover	Exotic Herb		x		x
*	<i>Trifolium tomentosum var. tomentosum</i>	Woolly Clover	Exotic Herb		x		
	<i>Vittadinia cuneata var. cuneata</i>	Fuzzy New Holland Daisy	Herb			x	
	<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	Herb		x		x
*	<i>Vulpia myuros</i>	Rat's-tail Fescue	Exotic Grass	x			

Paddock GMC07								
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5
	<i>Atriplex leptocarpa</i>	Slender-fruit Saltbush	Prostrate Shrub	x	x	x	x	x
	<i>Atriplex lindleyi subsp. inflata</i>	Corky Saltbush	Shrub		x			
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate Shrub	x				x
*	<i>Avena barbata</i>	Bearded Oat	Exotic Grass			x	x	
*	<i>Cotula bipinnata</i>	Ferny Cotula	Exotic Herb		x			
	<i>Crassula sieberiana s.s.</i>	Sieber Crassula	Herb		x			
	<i>Cressa australis</i>	Rosinweed	Herb	x	x		x	x
	<i>Duma horrida subsp. horrida</i>	Spiny Lignum	Shrub		x			
	<i>Einadia nutans subsp. nutans</i>	Nodding Saltbush	Herb				x	x
	<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	Shrub	x	x		x	x
	<i>Enteropogon acicularis</i>	Spider Grass	Tussock Grass		x			
*	<i>Hordeum leporinum</i>	Barley-grass	Exotic Grass	x				x
*	<i>Hordeum marinum</i>	Sea Barley-grass	Exotic Grass		x	x	x	
	<i>Lachnagrostis filiformis var. 1</i>	Common Blown-grass	Tussock Grass			x		
*	<i>Lepidium africanum</i>	Common Peppergrass	Exotic Herb	x				
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x	x	x
*	<i>Lophopyrum ponticum</i>	Tall Wheat-grass	Exotic Grass					x
*	<i>Lycium ferocissimum</i>	African Box-thorn	Exotic Shrub		x		x	
	<i>Maireana brevifolia</i>	Short-leaf Bluebush	Shrub	x	x		x	x
	<i>Maireana pentagona</i>	Hairy Bluebush	Shrub		x			

*	<i>Malva parviflora</i>	Small-flower Mallow	Exotic Herb				x	
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb	x	x	x	x	x
*	<i>Medicago sativa subsp. sativa</i>	Lucerne	Exotic Herb	x				
*	<i>Mesembryanthemum nodiflorum</i>	Small Ice-plant	Exotic Herb		x	x		
	<i>Nitraria billardierei</i>	Nitre-bush	Shrub		x			
*	<i>Parapholis incurva</i>	Coast Barb-grass	Exotic Grass			x		
*	<i>Phalaris minor</i>	Lesser Canary-grass	Exotic Grass	x				
	<i>Plantago cunninghamii</i>	Clay Plantain	Herb		x			
*	<i>Polygonum aviculare s.s.</i>	Hogweed	Exotic Herb	x				
	<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub	x	x			
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb		x	x		x
	<i>Rytidosperma setaceum var. setaceum</i>	Bristly Wallaby-grass	Tussock Grass		x	x		
	<i>Sclerochlamys brachyptera</i>	Short-wing Saltbush	Prostrate Shrub		x	x		
	<i>Sclerolaena muricata var. villosa</i>	Grey Roly-poly	Shrub	x	x	x	x	
*	<i>Scorzonera laciniata</i>	Scorzonera	Exotic Herb	x				
	<i>Senecio glossanthus s.s.</i>	Slender Groundsel	Herb	x	x	x		x
	<i>Senecio quadridentatus</i>	Cotton Fireweed	Herb	x				x
*	<i>Sisymbrium irio</i>	London Rocket	Exotic Herb		x			
	<i>Solanum esuriale</i>	Quena	Herb					x
*	<i>Sonchus asper s.s.</i>	Rough Sow-thistle	Exotic Herb	x	x			x
	<i>Spergularia sp. 3</i>	Salt Sea-spurrey	Herb		x			
	<i>Stelligera endecaspinis</i>	Star Bluebush	Shrub		x			
	<i>Tecticornia pergranulata subsp. pergranulata</i>	Blackseed Glasswort	Shrub			x		

Paddock GMGP2.1						
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3
	<i>Atriplex leptocarpa</i>	Slender-fruit Saltbush	Prostrate Shrub	x	x	x
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate	x		x

			Shrub			
*	<i>Avena barbata</i>	Bearded Oat	Exotic Grass	x		
	<i>Einadia nutans subsp. nutans</i>	Nodding Saltbush	Herb		x	x
	<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	Shrub		x	
	<i>Enteropogon acicularis</i>	Spider Grass	Tussock Grass	x		
*	<i>Hordeum leporinum</i>	Barley-grass	Exotic Grass			x
*	<i>Lepidium africanum</i>	Common Peppercross	Exotic Herb			x
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x
*	<i>Lycium ferocissimum</i>	African Box-thorn	Exotic Shrub	x		
*	<i>Malva parviflora</i>	Small-flower Mallow	Exotic Herb			x
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb		x	x
*	<i>Medicago sativa subsp. sativa</i>	Lucerne	Exotic Herb		x	x
*	<i>Polygonum aviculare s.s.</i>	Hogweed	Exotic Herb			x
	<i>Rhagodia spinescens</i>	Hedge Saltbush	Shrub	x		x
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb			x
	<i>Salsola tragus subsp. tragus</i>	Prickly Saltwort	Herb	x		x
	<i>Sclerolaena muricata var. villosa</i>	Grey Roly-poly	Shrub	x	x	x
*	<i>Scorzonera laciniata var. laciniata</i>	Scorzonera	Exotic Herb	x		
	<i>Senecio glossanthus s.s.</i>	Slender Groundsel	Herb	x		x
*	<i>Sonchus asper s.s.</i>	Rough Sow-thistle	Exotic Herb	x		x

Paddock JCR02							
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4
	<i>Atriplex leptocarpa</i>	Slender-fruit Saltbush	Prostrate Shrub	x	x		x
	<i>Atriplex lindleyi subsp. inflata</i>	Corky Saltbush	Shrub	x	x	x	x
	<i>Atriplex nummularia</i>	Old-man Saltbush	Shrub		x		
	<i>Atriplex pseudocampanulata</i>	Mealy Saltbush	Shrub	x	x	x	x
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate Shrub			x	
*	<i>Avena barbata</i>	Bearded Oat	Exotic Grass		x	x	
*	<i>Cotula bipinnata</i>	Ferny Cotula	Exotic Herb				x
*	<i>Hordeum leporinum</i>	Barley-grass	Exotic Grass	x			x
*	<i>Hordeum marinum</i>	Sea Barley-grass	Exotic Grass				x

*	<i>Lepidium africanum</i>	Common Peppercross	Exotic Herb	x				x
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x		x
	<i>Maireana brevifolia</i>	Short-leaf Bluebush	Shrub	x	x	x		
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb	x	x	x		x
*	<i>Mesembryanthemum nodiflorum</i>	Small Ice-plant	Exotic Herb					x
	<i>Osteocarpum salsuginosum</i>	Bonefruit	Herb					x
*	<i>Parapholis incurva</i>	Coast Barb-grass	Exotic Grass					x
*	<i>Polygonum aviculare s.s.</i>	Hogweed	Exotic Herb	x		x		x
	<i>Puccinellia stricta var. stricta</i>	Australian Saltmarsh-grass	Tussock Grass					x
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb	x	x	x		x
	<i>Rytidosperma setaceum var. setaceum</i>	Bristly Wallaby-grass	Tussock Grass			x		
	<i>Salsola tragus subsp. tragus</i>	Prickly Saltwort	Herb	x	x			x
	<i>Sclerolaena muricata var. villosa</i>	Grey Roly-poly	Shrub			x		
*	<i>Scorzonera laciniata var. laciniata</i>	Scorzonera	Exotic Herb	x	x	x		
	<i>Senecio glossanthus s.s.</i>	Slender Groundsel	Herb					x
*	<i>Sisymbrium irio</i>	London Rocket	Exotic Herb		x	x		
*	<i>Sonchus asper subsp. asper</i>	Rough Sow-thistle	Exotic Herb			x		
*	<i>Spergularia diandra</i>	Lesser Sand-spurrey	Exotic Herb					x
	<i>Tecticornia pergranulata</i>	Blackseed Glasswort	Shrub					x
	<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	Herb					x
	<i>Walwhalleya prolata</i>	Rigid Panic	Tussock Grass	x				

Paddock KCL03								
Origin	Botanical name	Common name	Lifeform	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Quadrat 5
	<i>Atriplex semibaccata</i>	Berry Saltbush	Prostrate Shrub	x	x	x	x	x
	<i>Austrostipa scabra subsp. falcata</i>	Rough Spear-grass	Tussock Grass		x			
	<i>Carex inversa</i>	Knob Sedge	Sedge/Rush	x				
*	<i>Cirsium vulgare</i>	Spear Thistle	Exotic Herb		x			
	<i>Convolvulus angustissimus subsp. angustissimus</i>	Blushing Bindweed	Herb	x				
	<i>Cressa australis</i>	Rosinweed	Herb		x			x

	<i>Einadia nutans subsp. nutans</i>	Nodding Saltbush	Herb	x			x	x
	<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	Shrub		x			
	<i>Enteropogon acicularis</i>	Spider Grass	Tussock Grass	x	x			
*	<i>Helminthotheca echioides</i>	Ox-tongue	Exotic Herb	x	x	x	x	
*	<i>Hordeum leporinum</i>	Barley-grass	Exotic Grass			x		
*	<i>Hordeum marinum</i>	Sea Barley-grass	Exotic Grass	x	x	x	x	x
	<i>Juncus flavidus</i>	Gold Rush	Sedge/Rush	x				
*	<i>Lactuca serriola</i>	Prickly Lettuce	Exotic Herb	x	x	x	x	x
*	<i>Lepidium africanum</i>	Common Peppergrass	Exotic Herb	x			x	x
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	Exotic Grass	x	x	x	x	x
	<i>Marsilea drummondii</i>	Common Nardoo	Herb	x				
*	<i>Medicago polymorpha</i>	Burr Medic	Exotic Herb		x			
	<i>Oxalis perennans</i>	Grassland Wood-sorrel	Herb	x				
*	<i>Phalaris minor</i>	Lesser Canary-grass	Exotic Grass	x		x	x	
	<i>Rhodanthe corymbiflora</i>	Paper Sunray	Herb					x
	<i>Rytidosperma bipartitum s.s.</i>	Leafy Wallaby-grass	Tussock Grass	x	x		x	
	<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Tussock Grass				x	
	<i>Rytidosperma duttonianum</i>	Brown-back Wallaby-grass	Tussock Grass	x				
	<i>Rytidosperma setaceum var. setaceum</i>	Bristly Wallaby-grass	Tussock Grass		x			x
	<i>Salsola tragus subsp. tragus</i>	Prickly Saltwort	Herb					x
	<i>Sclerolaena muricata var. villosa</i>	Grey Roly-poly	Shrub	x	x		x	x
*	<i>Scorzonera laciniata var. laciniata</i>	Scorzonera	Exotic Herb		x	x		
	<i>Senecio quadridentatus</i>	Cotton Fireweed	Herb	x	x		x	
*	<i>Sonchus asper s.s.</i>	Rough Sow-thistle	Exotic Herb	x	x		x	x
*	<i>Trifolium tomentosum var. tomentosum</i>	Woolly Clover	Exotic Herb		x			
	<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	Herb	x	x			x

	<i>Walwhalleya proluta</i>	Rigid Panic	Tussock Grass		x	x	x	x
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