

*Understanding pre-European  
Adelaide plains and foothills  
vegetation associations – managing  
remnants and recreating grasslands.*

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First a look at historical records of the vegetation of the Adelaide Plains and foothills. In 1836 grassland and grassy woodland dominated.

Numerous early commentators referred to the generally open plains between Glenelg and the new site of Adelaide and the extensive areas of kangaroo grass.

George Stevenson, senior colonial official in December 1836 reported

“Walked on the proposed site of the city, about 5 miles from Glenelg, over a level plain studded with trees and every here and there a rich meadow land, which only wants to be turned over to produce a heavy crop of Indian corn or wheat. It is a loam, more or less, mixed with sand, the grass in many places three or four feet high, and the whole tract evidently of the most luxuriant description.”

The area around Adelaide was described as having a fair covering of trees with grassy understorey but generally lacking density of shrubs apart from some areas (especially tea tree) near Port Adelaide and the Reedbeds. Early explorers into the Adelaide Hills noted both the extent of grassy meadows, kangaroo grass and open country with significant areas of trees.

Botanist James Backhouse visited Adelaide in December 1837 and recorded:

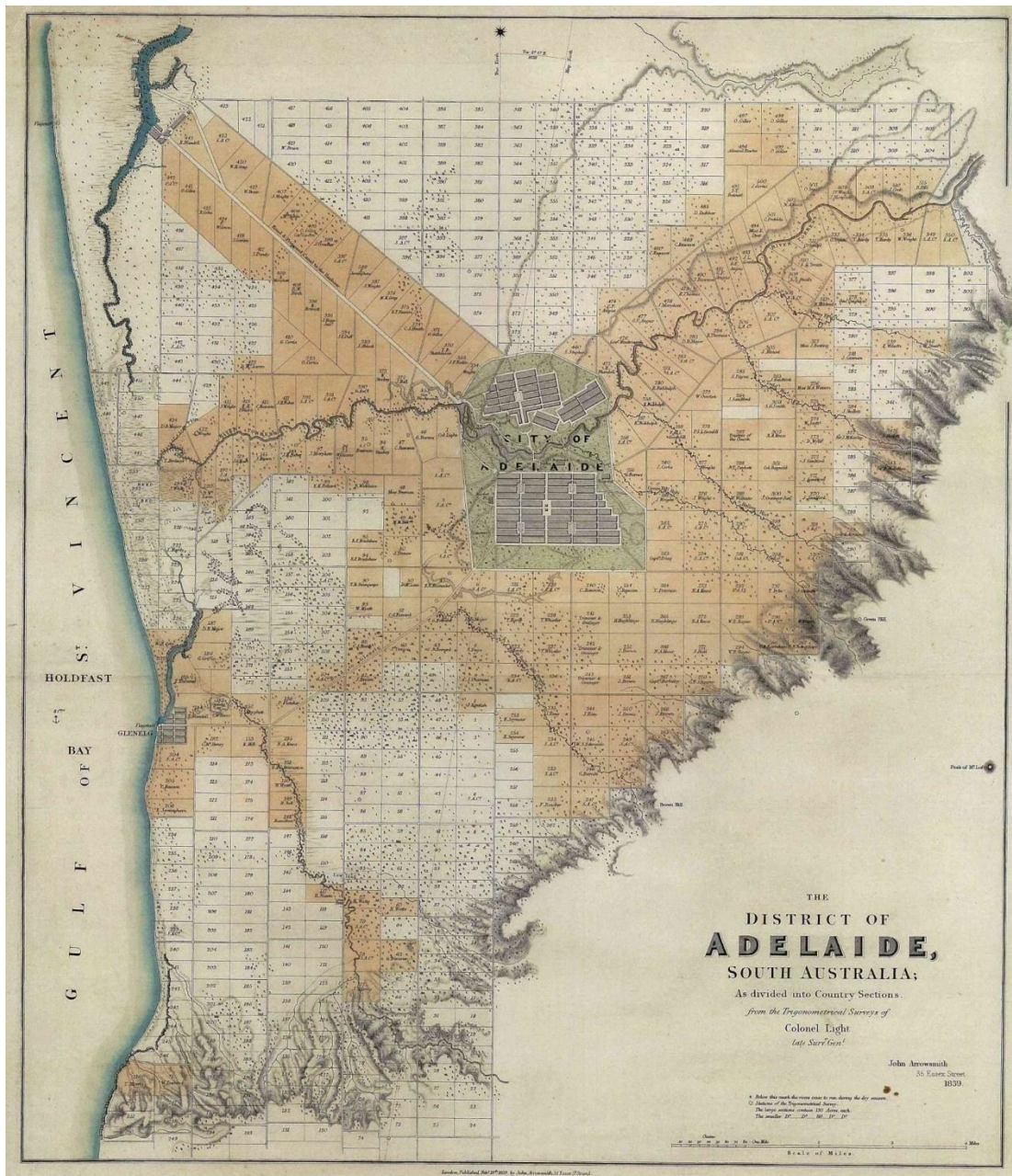
“After crossing the grassy plains of Adelaide, the first hills ..are grassy, with a few trees, and a variety of plants. The next hills ...have trees scattered upon them..The next hills are...abounding in gay vegetation productions, in forest .. Some of the hills, like the plains below, are covered with ...fine Kangaroo grass, that is green, notwithstanding the temperature has, several times lately, risen to 107 in the shade.” (Quote taken from Bill Gammage *The Biggest Estate on Earth*)



Henry Nixon – surveyor with William Light produced this map in 1838. It shows a general representation of trees – denser around the Black Forest and Enfield areas, along creek lines etc.

Map from the reproduction of the Royal Geographic Society of South Australia (available to purchase from RGSSA)



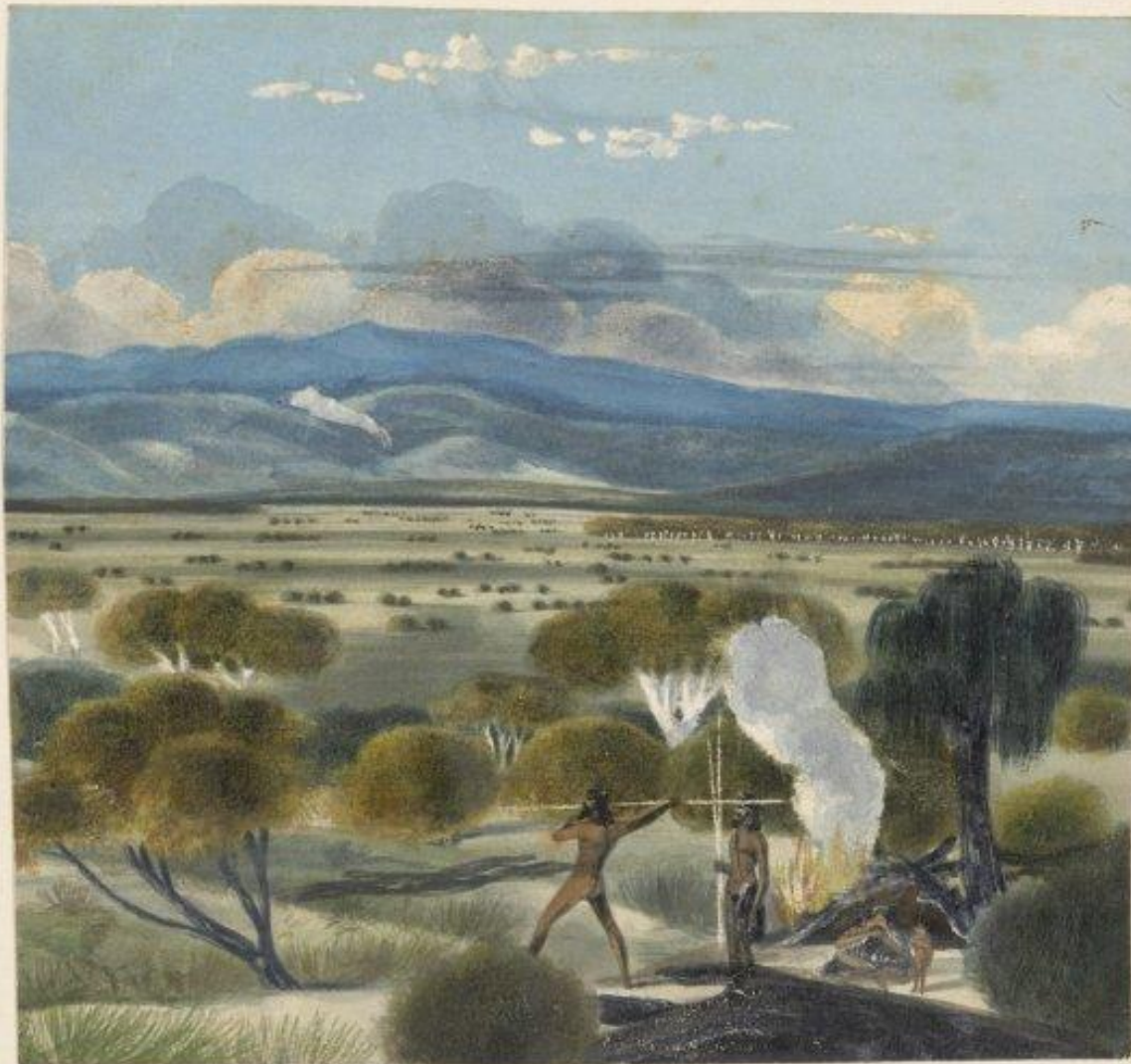


John Arrowsmith published this map in London in 1839 based on the Nixon 1838 map – some minor changes related to vegetation.

This map was the basis for a well researched Geography Honours Thesis in 1984 by Ann Riddle which concluded that the map was an accurate representation – copy available at the Royal Geographic Society of SA library.

Map scanned from a digital version held by State Library of South Australia – available on SLSA website





J A Thomas 1837  
“View on the  
Glenelg plains, near  
the hills”

Coastal vegetation in  
foreground,  
generally open  
plains with copses of  
trees and shrubs.  
Foothills lightly  
timbered.

From National Library  
of Australia “Picture  
Australia” - check with  
NLA before any further  
publication

## John Skipper 1838 “Adelaide from the Hills”.

Painting held by the Art Gallery of South Australia. Reproduced at front page in “Visions of Adelaide 1836-1886” 2005 Art Gallery of South Australia. The painting gives a very good impression of Adelaide plains as open grassy landscape with areas of trees and shrubs, foothills fairly bare of trees and the higher hills much more treed.

Light vegetation on foothills providing a clear view across the Adelaide plains . Mosaic of trees, shrubs and open country on the plains.

[www.artgallery.sa.gov.au/agasa/home/Collection/detail.jsp?ecatKey=7560](http://www.artgallery.sa.gov.au/agasa/home/Collection/detail.jsp?ecatKey=7560)

Martha Berkeley “Mount Lofty from the Terrace”  
c.1840

Painting held by the Art Gallery of South Australia.  
Reproduced at page 31 in “Visions of Adelaide 1836-1886” 2005 Art Gallery of South Australia. The painting gives a very good impression of Adelaide plains as open grassy landscape with areas of trees and shrubs, foothills fairly bare of trees and the higher hills much more treed.

A picture can also be seen on the Art Gallery of South Australia website at  
[www.artgallery.sa.gov.au/agasa/home/Collection/detail.jsp?ecatKey=468](http://www.artgallery.sa.gov.au/agasa/home/Collection/detail.jsp?ecatKey=468)

And also see page 8 in  
[www.artgallery.sa.gov.au/agasa/home/Learning/docs/Online\\_Resource/ED05VisionsOfAdelaide.pdf](http://www.artgallery.sa.gov.au/agasa/home/Learning/docs/Online_Resource/ED05VisionsOfAdelaide.pdf)



# The Gammage thesis

Bill Gammage has written an important book *“The Biggest Estate on Earth – How Aboriginal people made Australia”* – published late in 2011.

- Gammage says that the unusual landscape seen by early European settlers was a product of careful management by Aboriginal people with the purpose of creating different plant associations in close proximity to increase the productivity and availability of desired plants and animals and to make life as a hunter and gatherer more predictable and easier.
- Fire was the main tool. Fire was used to create grasslands (by regular, but not too regular burning depending on the climate of the area), and managed in a way which produced areas of grassland flanked or surrounded by trees and shrubs. This could produce ideal habitat for animals such as kangaroos, emus and wallabies as well as smaller animals. The system was rigid in some ways (especially timing of burning) but also dynamic in moving the grassland areas over time to allow soil to recuperate. Multiple areas would be created which allowed people to move around their landscape as required by cultural rules.

- The main areas of such activity could be expected to be more closely related to water supply – hence Adelaide along the Torrens would be a prime location to work on.
- I think the evidence Gammage assembles is compelling. Some of the more sweeping statements will be subject to questioning but the information presented needs to be carefully considered. The examples of connected patches of grassland in the high rainfall forests of Tasmania makes a very strong case. Gammage assembles data across Australia, including around Adelaide. The evidence also includes the changes which occurred when Aboriginal land management abruptly ceased – often an increase in trees and shrubs at the expense of grassland associations.
- If we accept that grasslands and grassy woodlands in our region in 1836 were in significant part human constructions, that has an impact on what management we should be looking at in conserving remnants and recreating landscapes. Think about it - more on that later.

“Messrs. Fisher and Handcock’s Station near the Gawler Range”  
Drawing/Painting by William Light January 1839

This place is/was on Gould Creek/Little Para junction where the Little Para reservoir has been constructed. The painting/drawing shows a few trees along a creekline but otherwise a landscape basically devoid of trees and shrubs. A surprising image to some but it is in an area shown on Survey plans as mainly grassland. See later map at Page 34.

The painting/drawing is reproduced in “William Light’s Brief Journal and Australian Diaries” Introduction and notes by David Elder 1984 Page 130 January 1839 Painting held by Art Gallery of South Australia. Also check Art Gallery of South Australia website.



“Mr. McLaren’s party Jany 11<sup>th</sup> 1839 about 14 miles north of the Para Pass” - painting by William Light

Near Rosedale on the North Para – scattered trees on the foothills, kangaroo grass etc grassland.

See the painting in “William Light’s Brief Journal and Australian Diaries”  
Introduction and notes by David Elder 1984 Page 137 Painting held by Art Gallery of South Australia. Also check Art Gallery of South Australia website.

## Now some written records

### John Oakden March 1838

“Notes on an excursion to the Murray” by Messers Hill, Wood, Williss and Oakden. SA Gazette and Register Facsimile 1836-1838 Page 74 c,d.

Thurs March 1. Left Adelaide at noon, passed through the pine forest, and part of the Cowandilla plains, and encamped for the night at Mr. Barnard’s station.

Friday March 2. At seven a.m. we passed over the Cowandilla plains, saw seven emus but did not succeed in pulling one. Crossed the river Para [*Little Para*], we then directed our course to the eastward passing over a pretty range of hilly country. At 4 p. m. arrived at a valley with plenty of kangaroo grass, a rivulet runs through it; here we encamped for the night. The valley was swarming with cockatoos, seven of which were shot; we gave it the name of Cockatoo Valley.

Saturday March 3. At 4 a.m. left the valley and passed through a thick scrub; course north-east; started a dozen kangaroos but did not kill one; the country hilly, and the land much similar to that we saw the day previously- good and indifferent by turns; at

9 a.m. we arrived at Lyndock Valley, a beautiful place, good land and plenty of grass, but no springs or running water; saw many kangaroos during the morning; at eleven a.m. we arrived at the rivulet where the expedition under Colonel Light and Mr. Fisher turned back; abundance of beautiful green kangaroo grass; course north-east; the land improving; passed over some fine cattle country well watered.

## **“William Light’s Brief Journal and Australian Diaries”** William Light January 1839

Light travelled from Adelaide to Fisher and Handcock’s station in the Gawler Hills at the junction of Little Para and Gould Creek. Painting by Light shows tall trees and reeds in creek but otherwise hills mostly bare of trees and likewise the land around the residence.

Country 5 miles north of Lyndoch described - “greater part of this country is covered by kangaroo grass and its general appearance open with here and there patches of wood”.

**Reid family memoirs.** The Reid family were the first colonists to live in Gawler – travelling from Adelaide in February 1839 and established a farm of about 700 acres at Clonlea. Elizabeth Reid in her memoirs records camping at Dry Creek the first night after leaving Adelaide “The grass was very high. We had been for the last 3 miles travelling through what looked like high corn, but was really kangaroo grass, now seldom seen, and when the fire was lit to show us the way to the camp the grass took fire, burning miles of the country, fortunately to the north. Even now I remember what a glorious sight it was.”

Elizabeth Reid describes her impressions of Gawler town site looking west “Looking from the hill I thought it park like and beautiful, the fork being well marked with splendid gum trees along the banks of the rivers. The kangaroo grass was as high as corn, with a few flowers among it. Then clumps of wattle, with their lovely yellow balls, which scented the air. ...On our land we never allowed a gumtree to be cut down except to build bridges.”



Elizabeth Reid's brother Ross Reid also recorded early experiences in Gawler in an interview with the Bunyip 25 June 1909. "In Gawler itself there was very little timber, except on the banks of the rivers. ...There was a fair quantity of timber east of Gawler, especially when Sandy Creek was reached. The Gawler Plains were covered with kangaroo grass, and in lighting a fire on our way up the growth caught alight and there was an immense blaze".

**Edward John Eyre** **Edward Eyre's Autobiographical Narrative 1832-1839** Caliban 1984  
Leaving Adelaide 1 May 1839 page 195.

"The day was fine, the road good and the country open, pretty and fertile, so that we proceeded cheerily along as far as the little Para, a distance of about 12 miles. There was no water where we crossed it but by leading the horses two miles up amongst the hills plenty was found for them and some kegs full we brought back for our own use. On the following day we advanced about thirteen miles thro' the same kind of open plains, skirted with trees to the west and by undulating lightly timbered hills to the east. " *[Eyre travelling the usual route near what is now Main North Road]*

**Nathaniel Hailes - *Recollections. First glimpses of the bush*** South Australian Register  
13.2.1878 P5

“My first trip of any length was to Gawler... At that time no habitation had been erected between North Adelaide and the town which was honoured with the name of our second Governor. It consisted of three thatched cottages, one of which was the little inn afterwards designated “The Old Spot”.” .....*[on this information travelling in mid 1839]*

“From Adelaide to Gawler, or vice versa, was at that time a disagreeable ride in extremely hot weather. The wayfarer traversed an open plain on which no human habitation had been erected between the two townships... In cool moist weather, when a grassy carpet variegated with flowers of diversified hues more gracefully distributed than could have been suggested than the most skilful designers of patterns was spread beneath you, the ride was pleasant enough. Then an emu, a kangaroo, but more frequently a bustard or two, would cross your path, and instantly retreat amid the belt of trees which continuously intervened between the apparently interminable plain and the shore of St. Vincent’s Gulf; and drinkable water could be found at convenient intervals. But when the soil was bare and dusty, an unveiled sun scorching from above, and water only obtainable at distant intervals, the ride was somewhat trying.”

“Started from Adelaide Town at 11 am. Passing over a very monotonous road reached the *[Little] Para*, a small stream, about 2 pm. .. again onward. Still the same monotonous country, a low range of hills to the east bounded by an immense plain, to the west a belt of trees, and Gawler. ....on crossing it *[the South Para]* the relief was great, arising from the picturesque appearances of the little settlement ...the respectable stream meandering between banks which were dotted with gum.”

**Colonists Copper and Corn** Old Colonist Page 83 25 January 1851

“The north road from this spot (Grand Junction Inn) to Gawler Town presents no attractions. It lies along an immense expanse of plains, interrupted only by a strip of vegetation of the Dry Creek and Little Para.”

Page 85 at Salisbury “the wattles and other undergrowth near the inn have disappeared, and the cuttings through the hills to and from the bed of the stream make the place, naturally desolate, look still more dreary and sterile. Below the hill on which Mr Broadbent had pitched his tent is a small wattle scrub, almost the only green object, beside a few trees in the bed of the Para.”

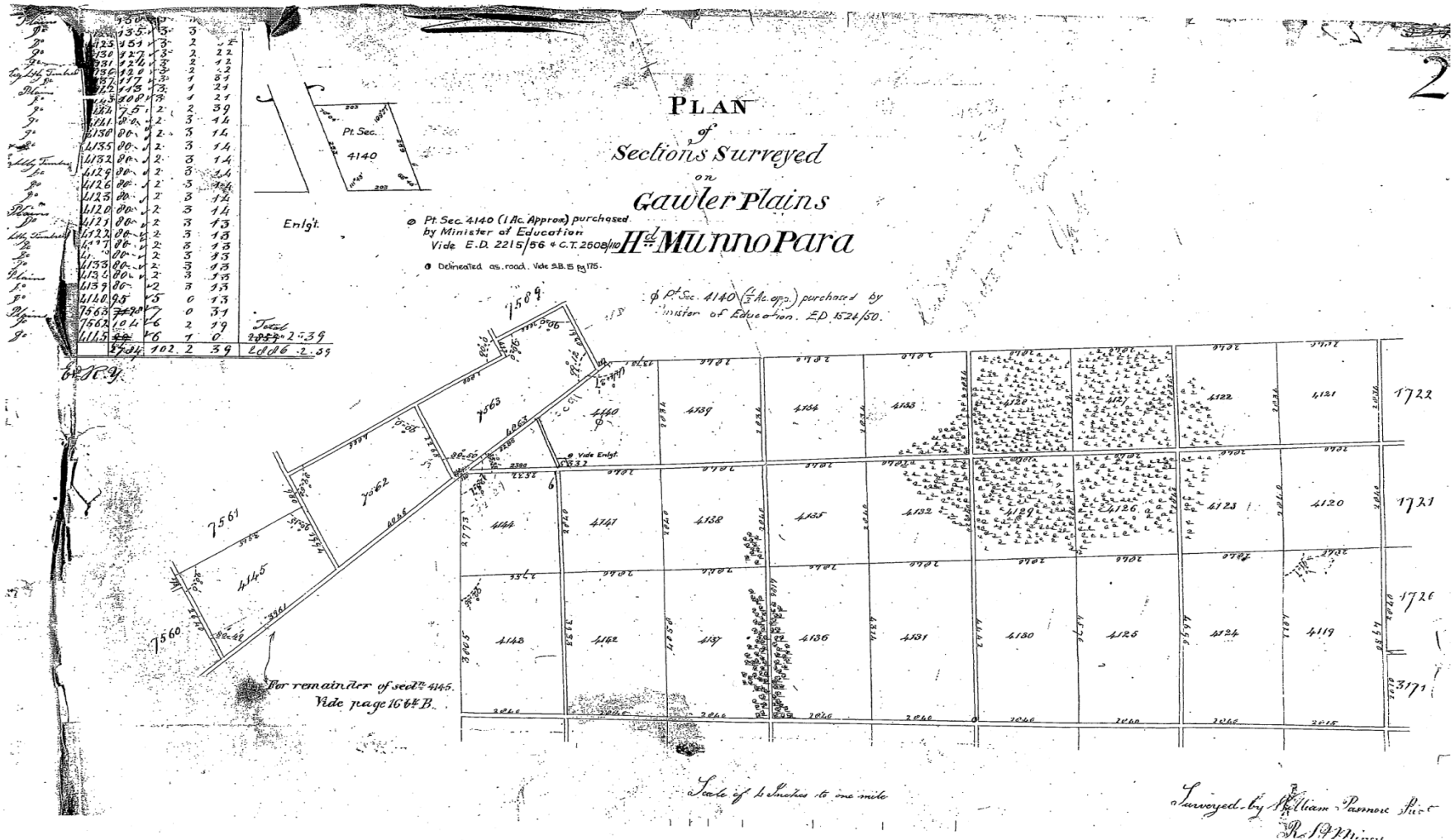
Page 89 28 January.1851. “From this place (*Little Para Old Spot*), at some distance across the plains to the west, and in a line with the Gulf, stretches what is called “Peachey Belt”, a forest belt consisting chiefly of peppermint-gum timber, extending for ten miles in length from north to south, by an average width of three miles. The importance of this vast range of material for fencing and firewood, particularly the latter, at no great distance to Adelaide, is almost incalculable. *[Clearly Peachey Belt not cleared prior to 1851]*



**South Australian Register (Adelaide, SA Wednesday  
8 April 1846)**

"Some evil-disposed person or persons during the last week cut down a tree long known as " The Five-mile Tree," on the Gawler Plain. This tree, so remarkable from its isolated position, served the double purpose of a halting-place, and a visual relief to those travelling on this very monotonous portion of the North Road, where for miles around scarcely anything but the dreary plain is visible. The good folk of the North are very wrath on the subject of this vandal spoliation, and could they catch the wanton depredators would doubtless give them a severe drubbing."

Now a look at some early survey plans of the Peachey Belt vicinity –  
wonderful picture below clearly showing scrub and open land



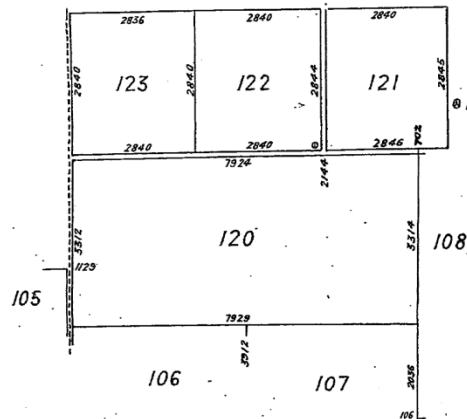
7B 96



*SECTIONS  
situated in the  
Peachy Belt  
H<sup>2</sup> of Munn's Purcell*

Pr. Sec. 4108 has been repurchased for a Soldier  
vide L.A.S. 5935/19 G. of T. Vol. 536 Fol. 46  
now sec: 121.

19

*Hệ Mudla Wirra.*



<i>Position of Permanent Marks shown thus</i>					
"	"	<i>Metal Pins</i>	"	"	M.P.
"	"	<i>Datum Pegs</i>	"	"	D.P.
"	"	<i>Old Marks</i>	"	"	O.P. or A.T.
"	"	<i>Observation Signs</i>	"	"	

*I hereby certify—*

1. That I have personally surveyed the land comprised in this map or plan, and that this map or plan is a correct delineation thereof.
2. That the survey carried out by me of the land comprised in this map or plan is accurate.

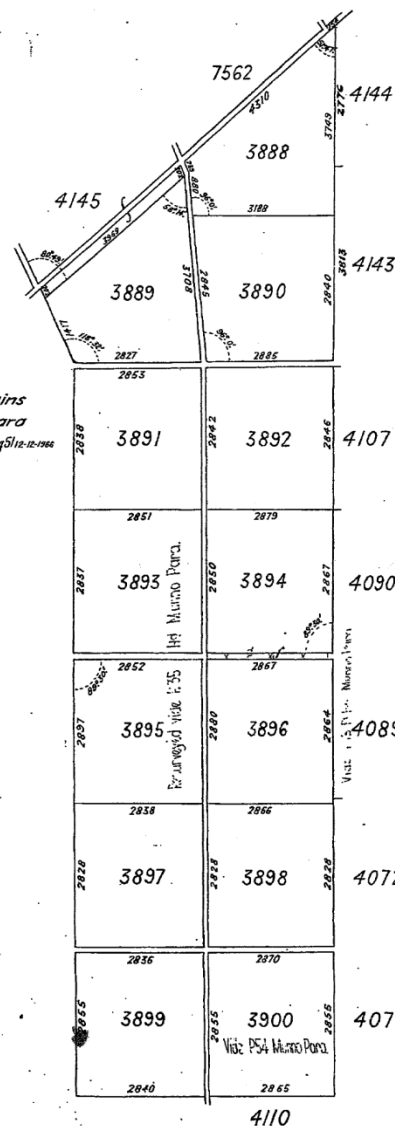
Dated this \_\_\_\_\_ day of \_\_\_\_\_ 19\_\_\_\_

*Licensed Surveyor:*

**SCALE**

Gawler Plains  
H<sup>d</sup> Munio Para

④ P<sup>T</sup> Sec 122 acquired for the PMG Dept Vide DL 12/1966 & SB 6 pg 5/12-12-1966



—Index—

No of Application	Section	Area	Roads	Remarks
198 51	414.5	8	45	{ Added to make up deficiency.
	3888	80		Open pasture
	3889	90		— " —
	3890	86		— " —
	3891	80		— " —
	3892	91		— " —
	3893	81		— " —
	3894	92		— " —
	3895	81		Lightly timbered
	5896	82		Open
172 57	3897	80	Part scrub	
	5898	91		Open pasture
	3899	81		— " —
	3900	81		— " —
	120	262		8
172 57	121	80	2	— " —
	122	80		— " —
	123	80		— " —
		1674	53	

Ø Road Closed side Road Plan No. 35 2nd of August 2011. The following

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Corp. R. S. and M.

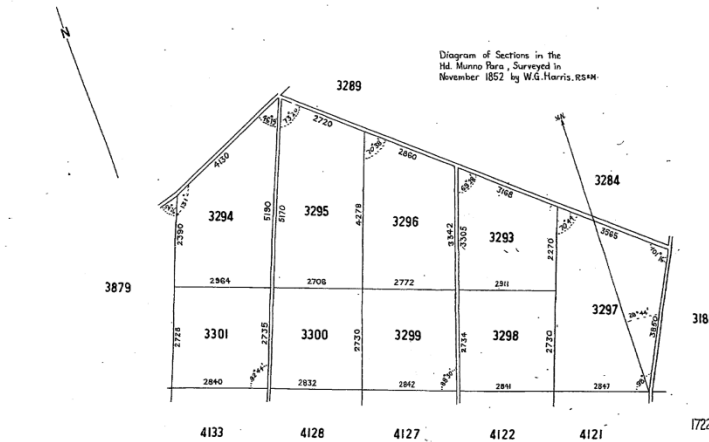
15.9.66

Area of Peachey Belt. Short Rd running south from Angle Vale Rd Survey date 1851.

Diagram Book Page 19 Hundred of Munno Para Land Title Office

# HUNDRED OF MUNNO PARA

12



## INDEX Field book 109 P.31

N <sup>o</sup> of App.	Sec <sup>n</sup> .	Area of Sec Rd.	Total Area	Locality	Remarks
138	3293	80		NW. of Smith's Creek	Open arable land.
	3294	113			
	3295	125			
	3296	106			
	3297	149		Hd. of Munno Para	no surface water.
	3298	78			
	3299	76			
	3300	75			
	3301	79			
		892	34		
			926		

no<sup>s</sup> exd.

areas exd.

Plotted on Hd. Sheet for  
Land Office 8th. Dec / 52

W. G. Harris R.S.M.  
Dec. 1st. 1852

SCALE  
CHAINS 20 15 10 5 0 30 40 50 CHAINS.

*W. G. Harris*  
14.2.67

Area of Peachey Belt south of Angle Vale Rd and Dalkeith Road.  
Survey date 1849.

Diagram Book Page 19 Hundred of Munno Para Land Title Office

# HUNDRED OF MUNNO PARA

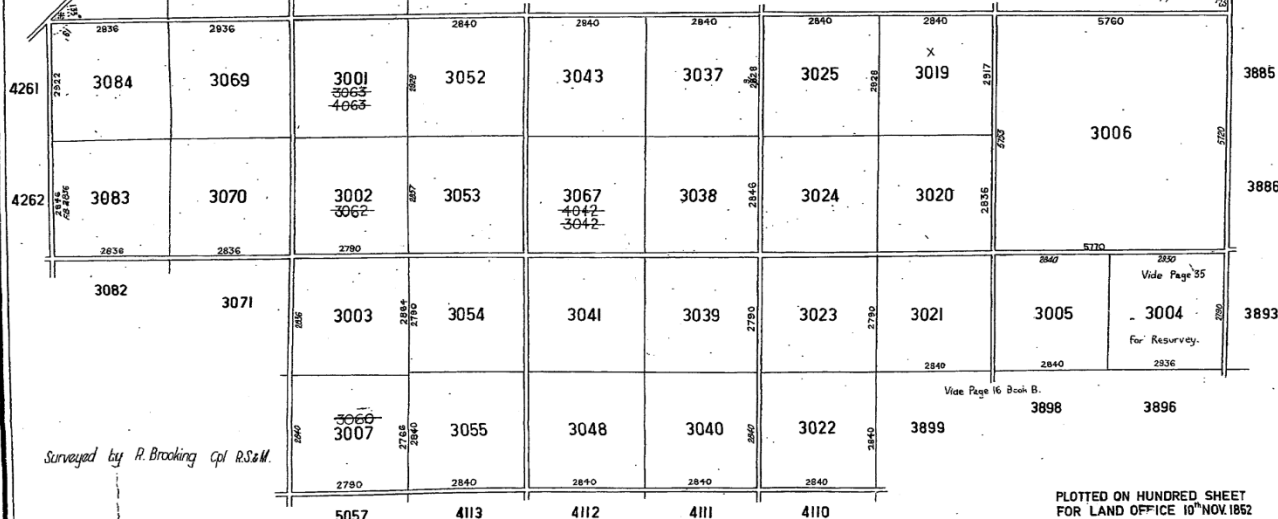
4

Pin. Sec 3085 Adjoined on road Vide  
search Book 14 Pg 234.  
H.L.G 2666/73

FB. 103.

INDEX  
TO  
DIAGRAM SCALE 4" to 1 MILE

X Allot 32 Sec 3019 transferred to the Minister of Education Vide E.D. 944/11. C1.2127



Surveyed by P. Brooking Cpl R.S.M.

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	3085	39	-		
	3084	82	-		THICKLY
	3083	80	-		TIMBERED
	3070	80	-		AND SCRUB
	3069	82	-		GOOD SOIL
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	2817	81	-		
	2816	81	-		
	2815	81	-		
	2814	81	-		
	2813	81	-		
	2812	81	-		
	2811	81	-		
	2810	81	-		
	2809	81	-		
	2808	81	-		
	2807	81	-		
	2806	81	-		
	2805	81	-		
	2804	81	-		
	2803	81	-		
	2802	81	-		
	2801	81	-		
	2800	81	-		
	2799	81	-		
	2798	81	-		
	2797	81	-		
	2796	81	-		
	2795	81	-		
	2794	81	-		
	2793	81	-		
	2792	81	-		
	2791	81	-		
	2790	81	-		
	2789	81	-		
	2788	81	-		
	2787	81	-		
	2786	81	-		



## Land north of Gawler – as described by early travellers

**Edward Eyre** *Edward Eyre's Autobiographical Narrative 1832-1839* Caliban 1984 Page 195 /6  
Leaving Gawler “On the 3rd May[1839] we fairly commenced our journey, leaving all tracks behind and striking out due north by compass. We passed thro’ a fine open district consisting of grassy lightly wooded country and open downs, the soil for the most part rich and good with small pieces of quartz scattered over the surface - timber box and casuarinae. To the eastward high ranges extended, a continuation of the Mt Lofty chain, skirted by open grassy hills in the front, We encamped for the night, after a stage of about fifteen miles, upon a large creek under a scrubby sandhill.... The next day, soon after starting, we came to another branch of the creek we had encamped upon which is called the Gilbert. The country extending from this to the northwards under the hills was very beautiful, lightly wooded, grassy and fertile. To the west of our route were high, bare and somewhat bleak downs, sprinkled with breccia [stone/pebbles].

**E. J. Eyre** *Journals of Expeditions of discovery into central Australia 1840-41* London 1845 p28  
June 20 1840 – from a point 5 miles from Gawler on the North Para Eyre moved “to my sheep station on the Light. We passed through some very fine country, the verdant and beautiful herbage of which, at this season of the year, formed a carpet of rich and luxuriant vegetation.”  
[This track would have been near Freeling ].

Daniel George Brock **Recollections of D.G.B. 1843**      Page 19      11  
September 1843.

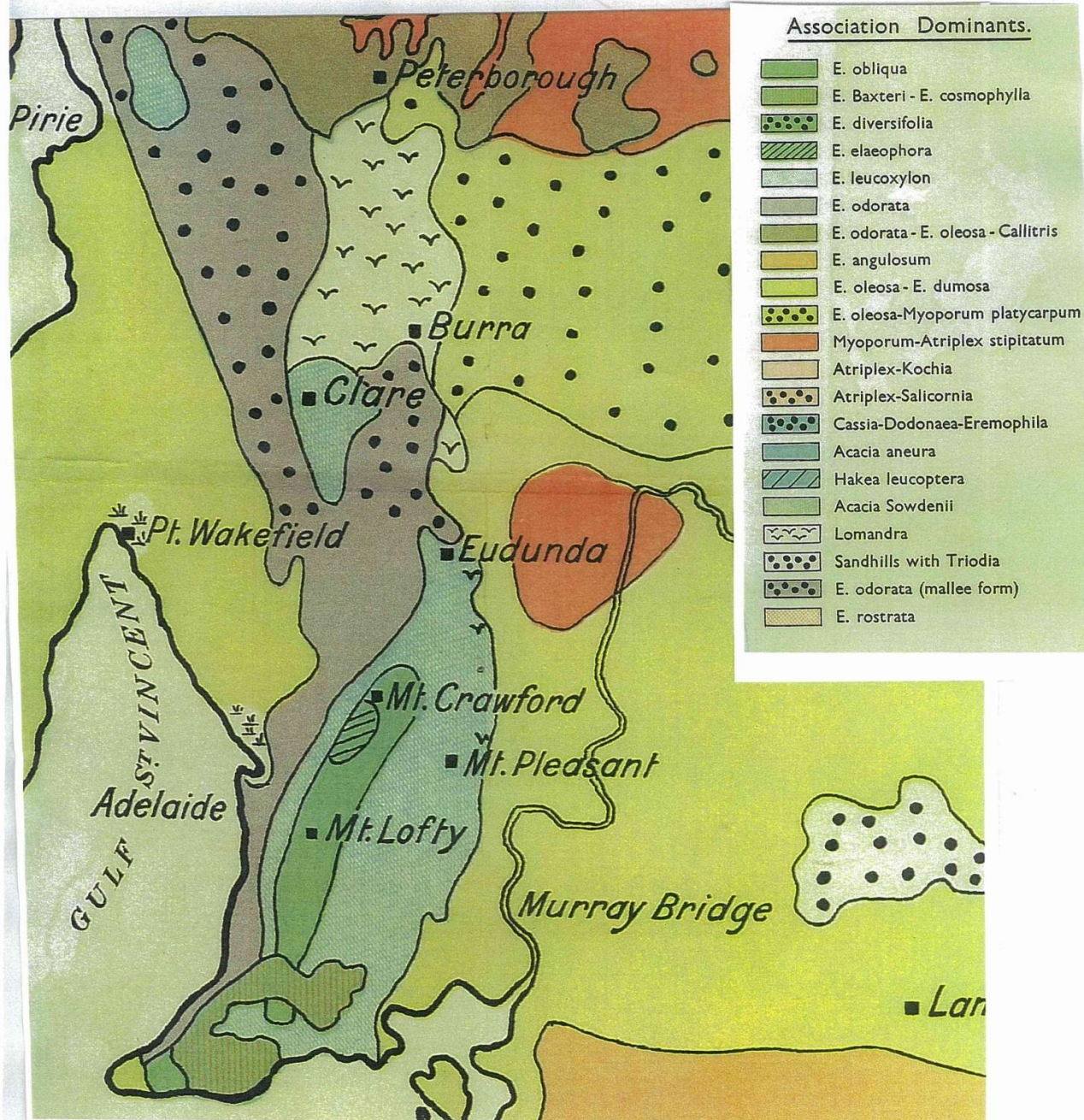
Left Gawler Town for the north. I passed over some very monotonous country, very little but immense plains. Scattered here and there were wattle and peppermints trees.

**Colonists Copper and Corn** Old Colonist

Page 143 20 February 1851.

After traveling north of Gawler Old Colonist returned and records “we left Templar’s for Gawler Town, the distance to which is nine miles, five of them over a cheerless plain with nothing to note till we looked down of the valley of the *[North]* Para”.

Moving forward in time to 20th century – scientists seem to have missed out on history lessons and we have the case of the missing grassland and a few other intriguing matters to look into.



## The Vegetation of South Australia J. G. Wood 1937 Govt Printer

Rearranged from map in book.  
Grassland on Adelaide plains ???

Light green –  
E oleosa – E dumosa

Grey – E odorata

Blue – E leucoxydon

Described as savannah woodland  
– herbaceous rather than shrubby  
understorey. Brown earth soils

Green – E obliqua

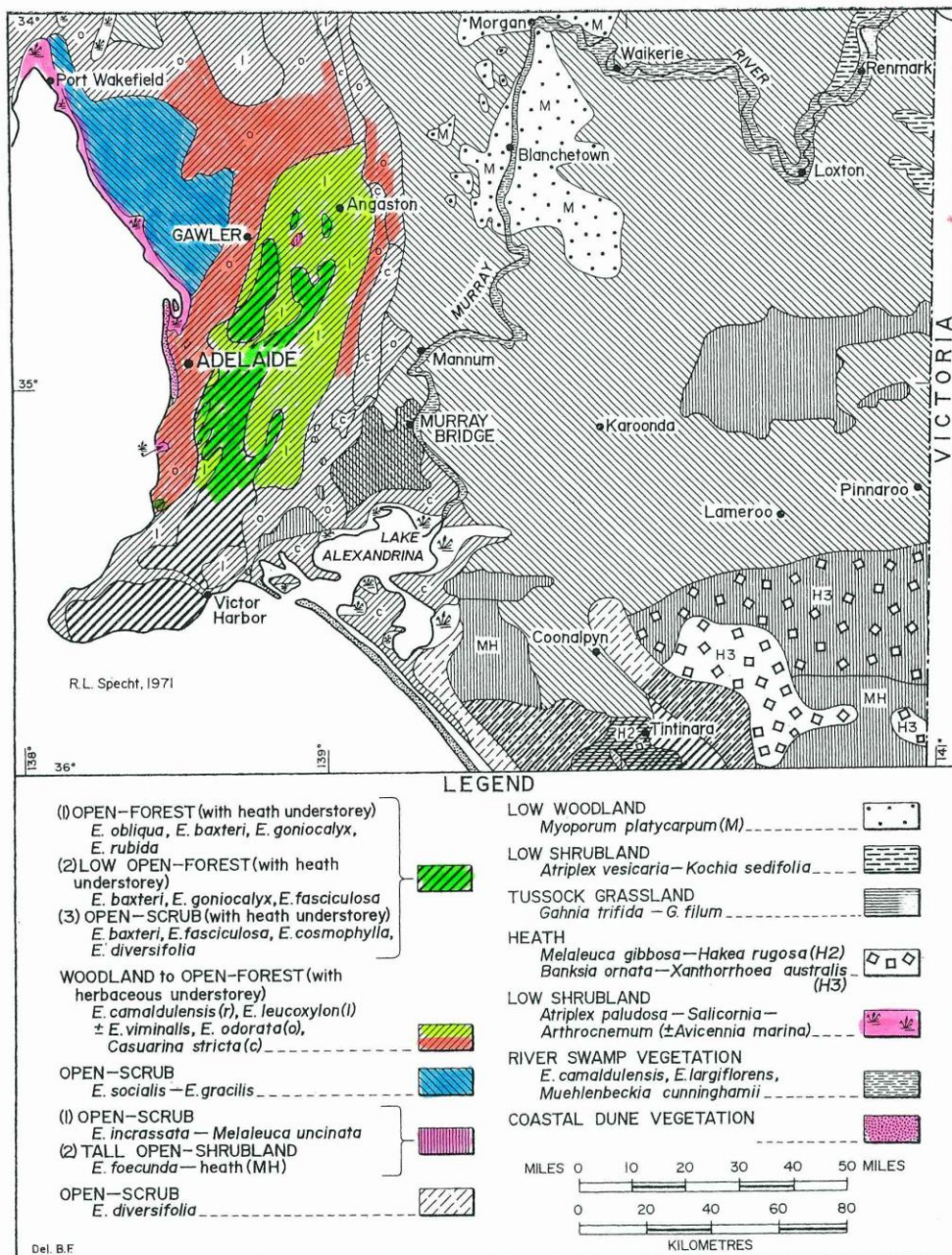
Hatched – E goniocalyx

Sclerophyll forest – woody shrub  
understorey. Podsol soils.

Burra/north Lomandra  
dura /danthonia open  
savannah grassland.

“Sub climax .. Highlands are cold  
and bleak, especially in winter,  
and it is probably this factor  
which inhibits tree growth in  
these areas” P62.





## Specht R.L. *Vegetation of South Australia* Second Edition 1972

Colouring by Adrian Shackley – no grassland on Adelaide plains – grassy woodland only??

Dark green - Open Forest, Low Open Forest, Open Scrub with heath understorey

Yellow – *E. leucoxylon* Woodland to Open Forest with herbaceous understorey

Red - *E. odorata* Woodland to Open Forest with herbaceous understorey

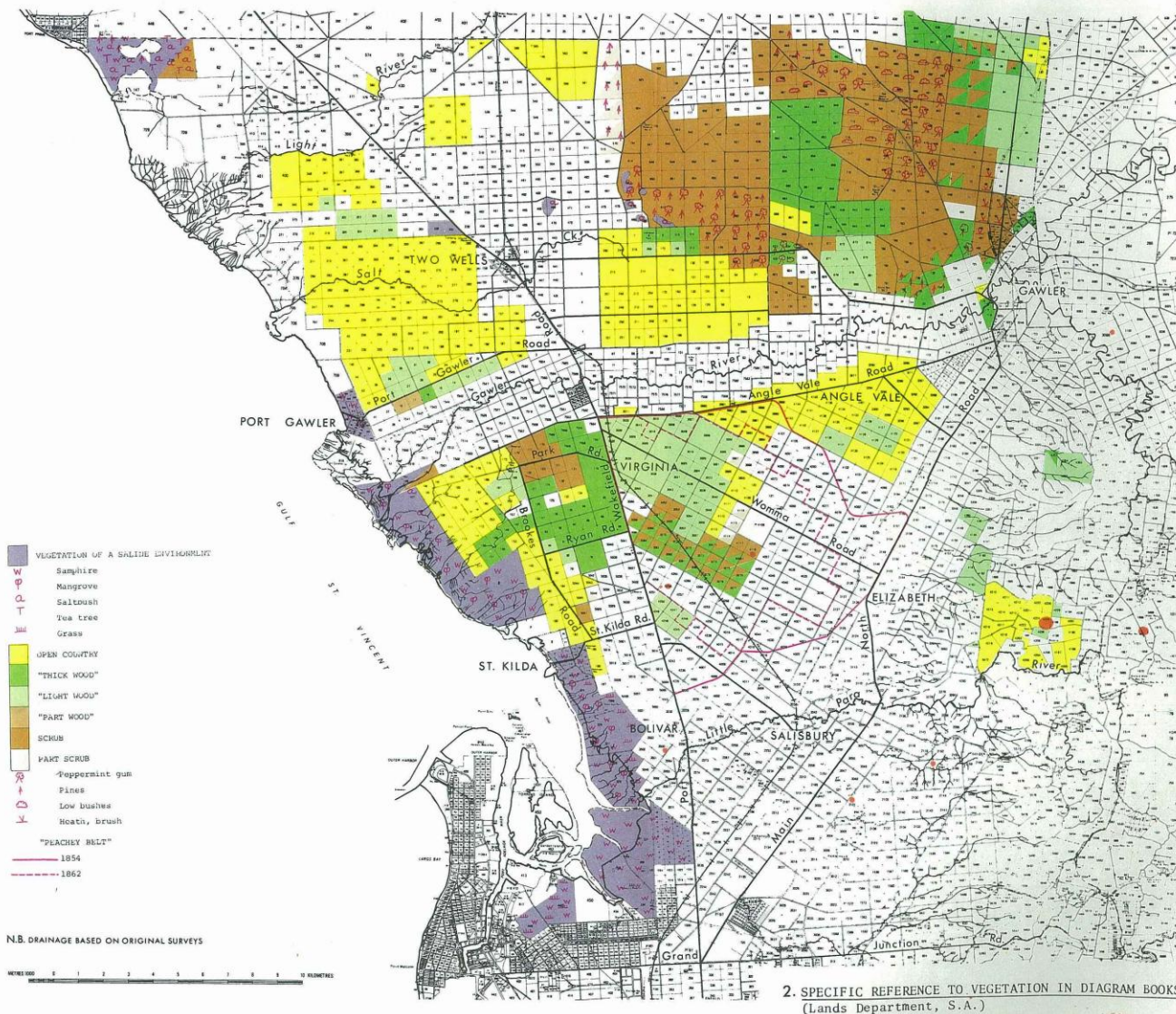
Blue – *E. socialis*, *E. gracilis* Open Scrub

Pink – Coastal shrubland and mangrove woodland.

Pink hatched East of Gawler – *E. incrassata* *Melaleuca uncinata* Open Scrub

Figure 127. Vegetation map of the Mount Lofty Ranges and Murray Lands of South Australia. (Based on Adamson and Osborn 1924; Blackburn *et al.* 1953; Boomsma 1948; Coaldrake 1951; Jackson 1957; Jessup 1946; Litchfield 1956; Northcote 1957 and 1959; Rix and Hutton 1953; Specht, Brownell and Hewitt 1961; Specht and Cleland 1961; Specht and Perry 1948.)





Grassland rediscovered?

Smith, Derek *Land Use and Groundwater History of the Northern Adelaide Plains* 1979

Page 5 Map showing vegetation information from Land Survey Diagram Books

Yellow – “Open country”  
[includes both grassland and coastal chenopod shrubland – area near coast and Lewiston shown yellow was not grassland]

Dark Green - Thick Wood

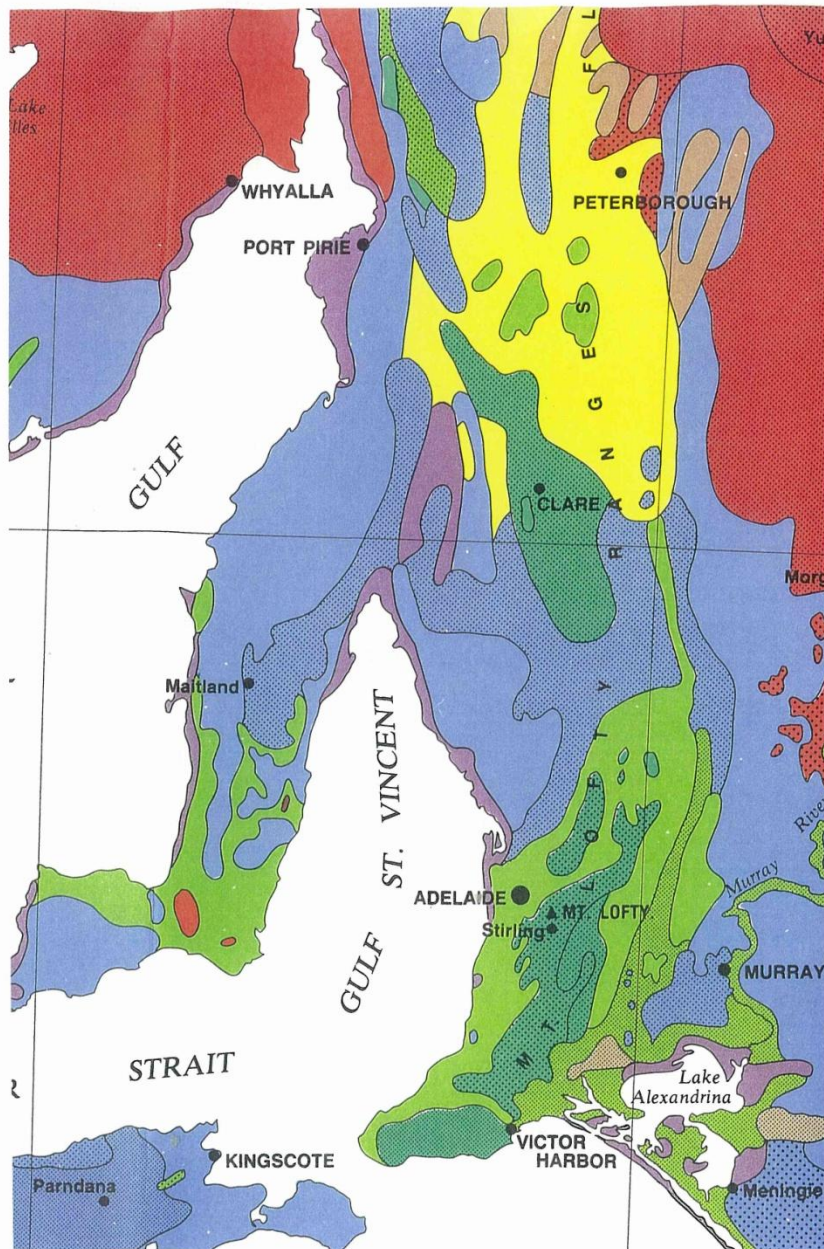
Light green - Light Wood

Light brown - Part Wood

Dark brown Scrub

Purple - Saline area





Grassland back in its box. Adelaide plains as Open scrub or Woodland and Open scrub??

Boomsma C.D. & Lewis N. B. *The native forest and woodland vegetation of South Australia* 1980 Woods & Forests Dept SA.

Map reduced from the whole of State map attached to back cover.

Light blue - Open scrub 85%  
woodland 15% shrub and grassland

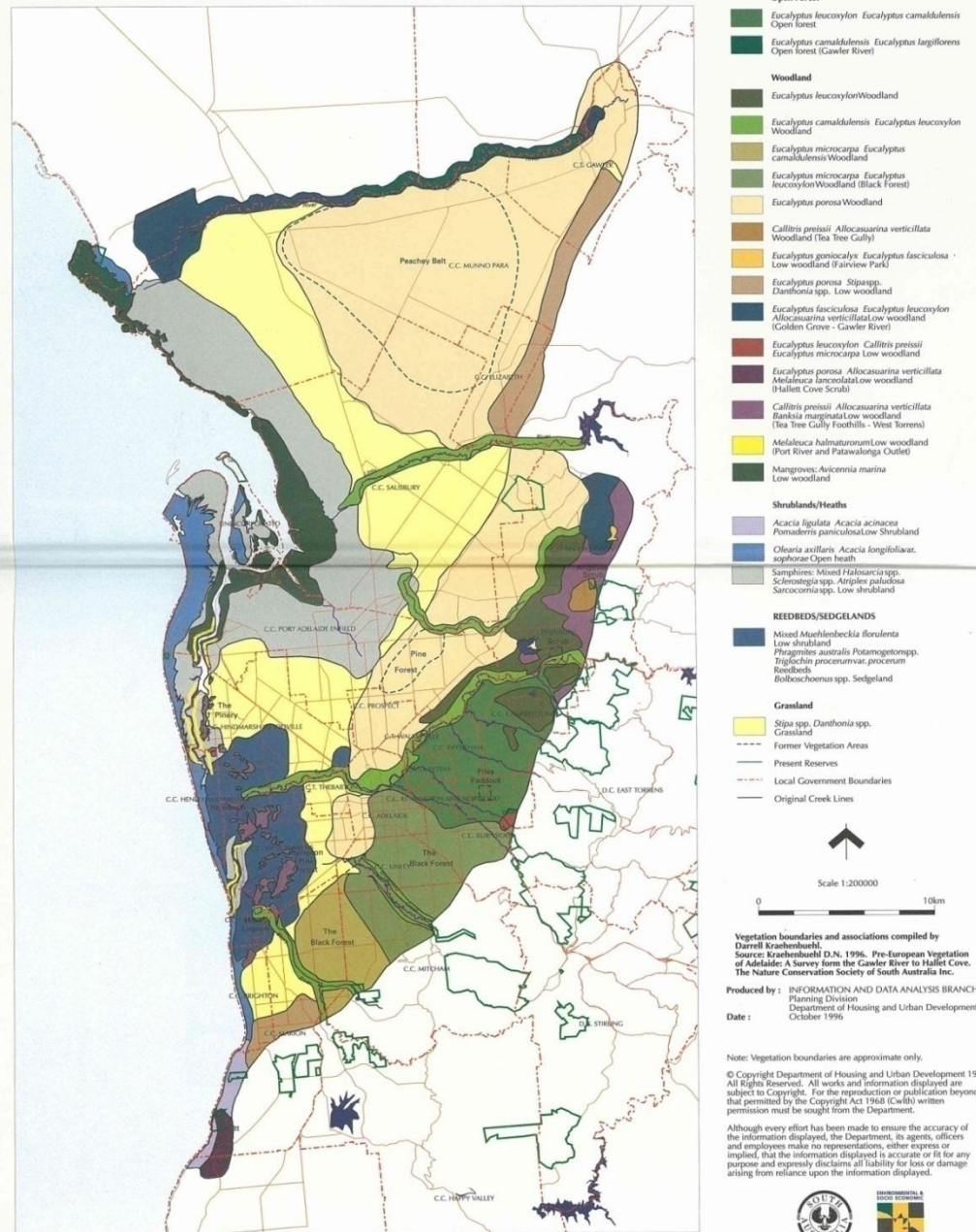
Dark blue - 40% woodland, 60% open scrub

Light green - 100% woodland

Dark green - 70/80% forest, 20-30% woodland/open scrub

Yellow – 100% grassland

# PLANT ASSOCIATIONS OF THE ADELAIDE PLAINS IN 1836



Grassland makes a big return but not yet in the right places.

Kraehenbuehl Darrell *Pre-European vegetation of Adelaide: a survey from the Gawler River to Hallett Cove* NCSSA 1986

Light brown - *E. porosa* Woodland.  
 Peachey Belt inside dashed line.

Dark brown - *E. porosa* *Stipa* spp, *Danthonia* spp. Low woodland

Yellow - *Stipa* spp., *Danthonia* spp. Grassland

Light blue/grey – Samphire, *Atriplex paludosa*. Low shrubland.

This map also reproduced in Daniels C.B. & Tait C.J *Adelaide Nature of a City* 2005 and is the basis for the pre-European vegetation maps on State Government websites – Nature Maps, Backyards for Wildlife etc.



## The Native Plants of Adelaide

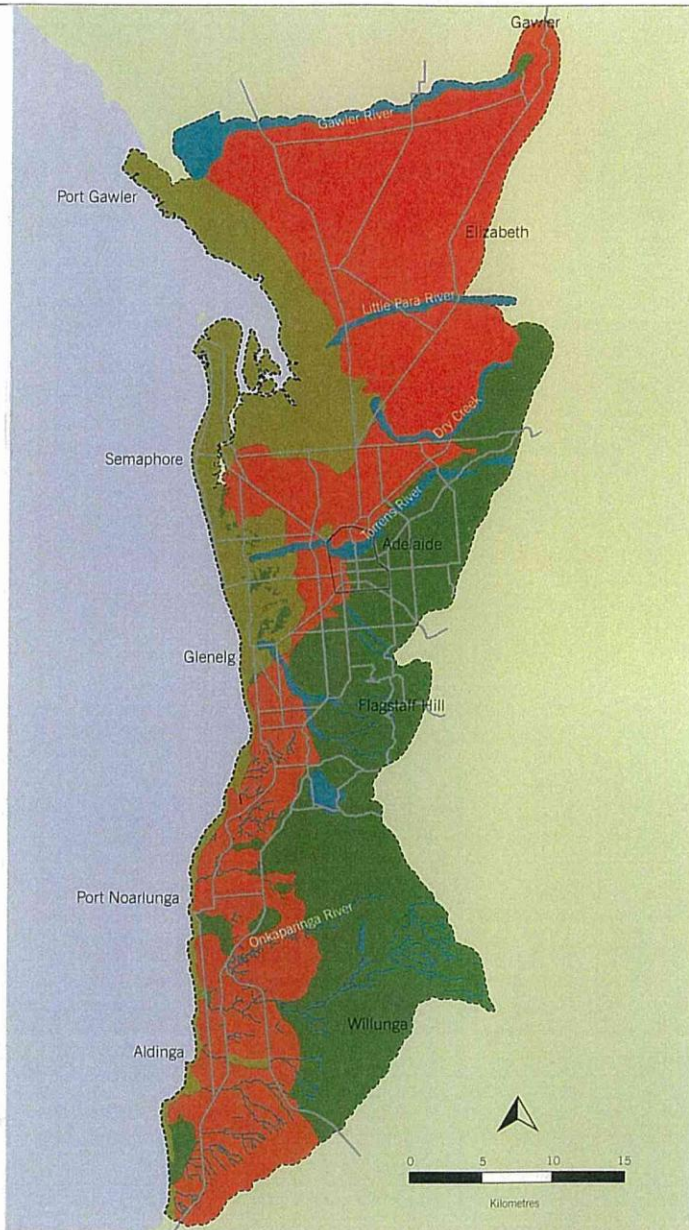
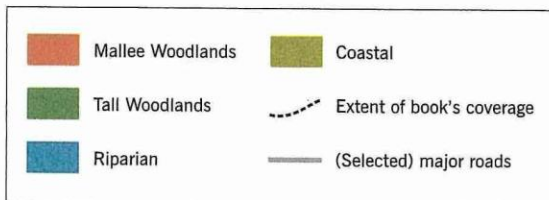
The adjacent map represents the major native plant types (or vegetation associations) for the Adelaide area.

In general, the map reveals an east-west transition from tall woodland types, through less-tall mallee woodland types, to shrub-dominated coastal vegetation. It also shows areas of riparian vegetation which are concentrated in swamps and in narrow ribbons along the major watercourses that cross the plains. This transition occurs in response to decreasing rainfall from east to west and from south to north, and also in response to changing soil types and other factors such as aspect, wind exposure and drainage.

Although this map is useful in establishing broad themes, readers interested in more specific information should refer to the more detailed 'parent' native vegetation maps available from the Urban Forest Biodiversity Program.

Common species are not indicated on the map due to the fact that they are widespread across the region. The Common plants profiled in this book can be found (and grown) across most of the Adelaide Plains.

It should be noted that areas of vegetation dominated by native grasses can occur in all association types. The pre-European vegetation of the Adelaide Plains included large areas of grassland, especially in the areas marked 'Mallee Woodlands' on our map. A comprehensive indigenous garden scheme should always include native grasses.

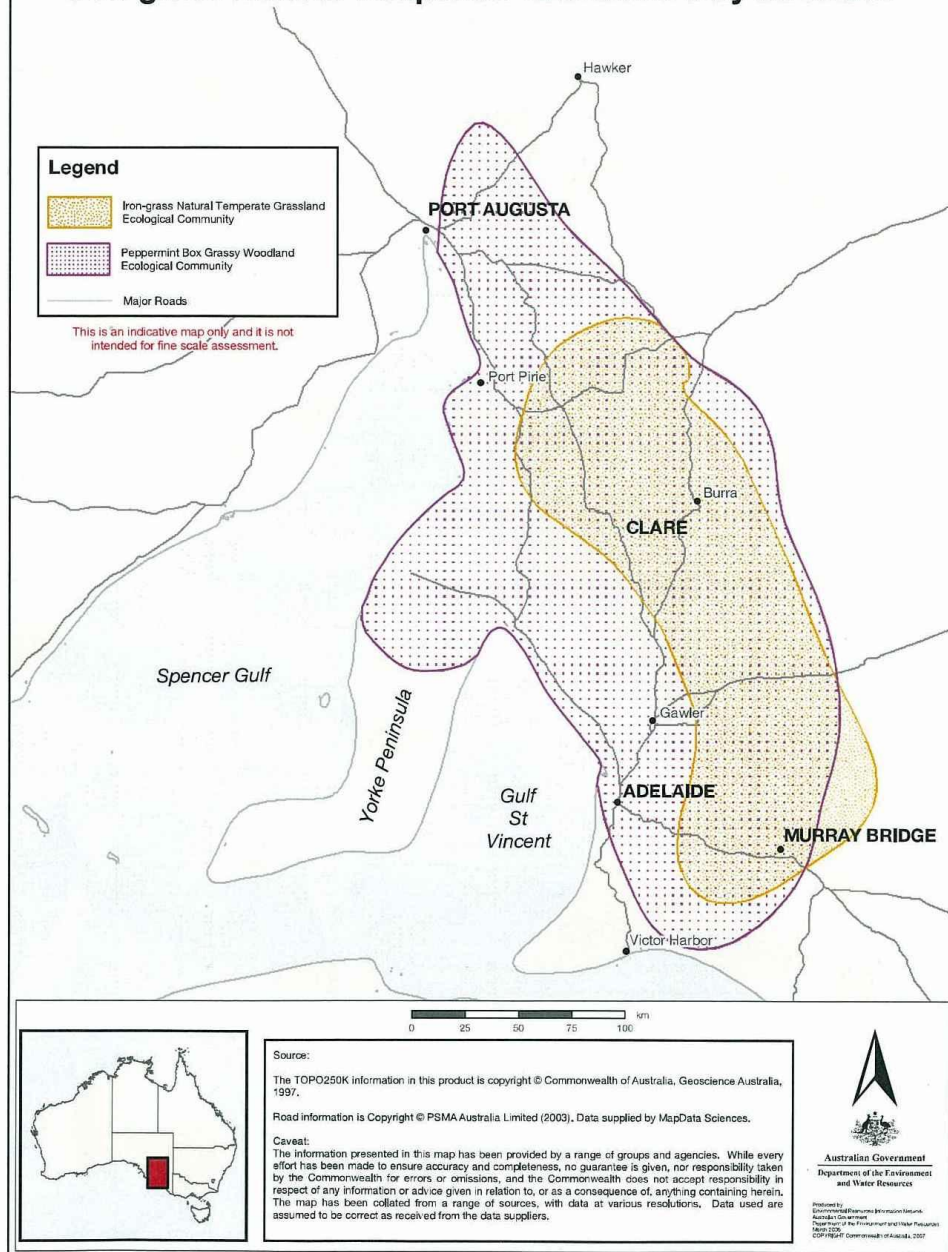


Grassland is emphasised as widespread but detail needed.

## The Native Plants of Adelaide Bagust P. & Tout-Smith L. 2005

Based on Darrell Kraehenbuehl 1996 map but combining areas of grassland and *E. porosa* and *E. microcarpa* woodlands into generic mallee woodlands (Red) and various areas of woodland into "Tall woodlands" (Green) noting that the northern Adelaide plains contained large areas of grasslands and that areas of grasslands can occur in all association types.

**General area in which patches of  
Peppermint Box Grassy Woodland and  
Iron-grass Natural Temperate Grassland may be found**



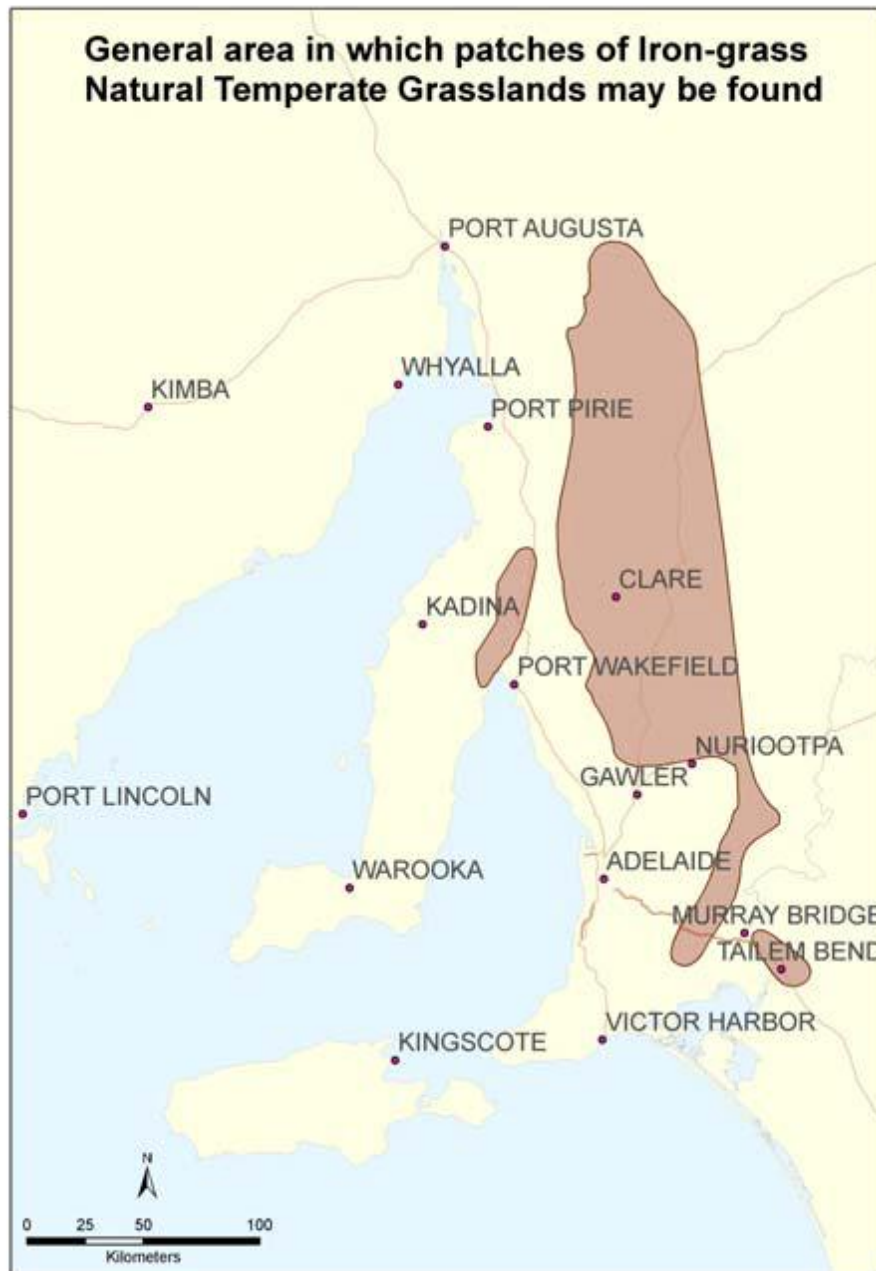
Grasslands and Grassy woodland on the move.

*Peppermint box (Eucalyptus odorata) grassy woodland of South Australia and iron-grass natural temperate grassland of South Australia.*

Environmental Protection and Biodiversity Conservation Act Policy Statement 2007.

2007 Map showing approximate extent of 2 EPBC declared critically endangered associations

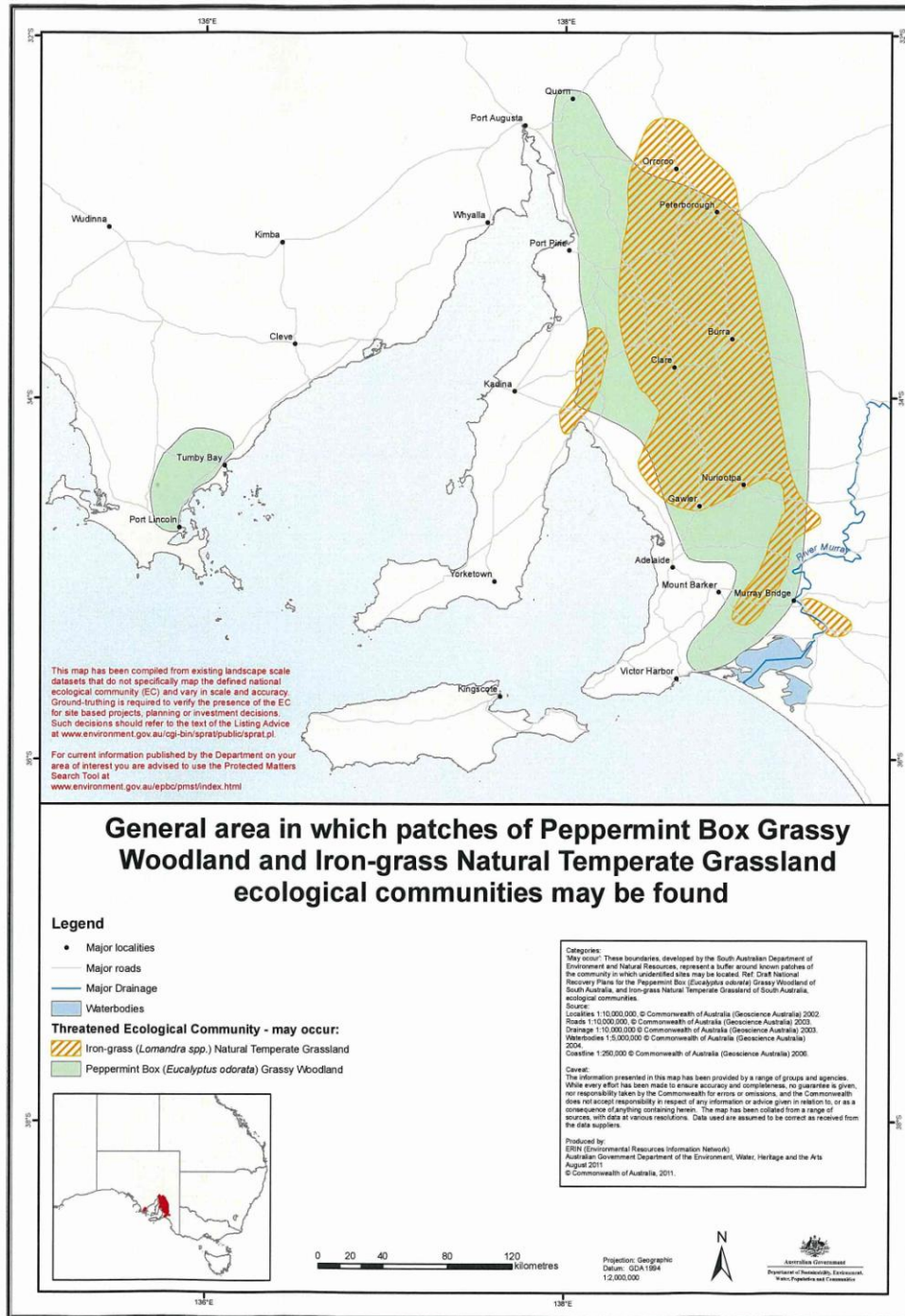




Grassland moving towards the northern Adelaide plains.

Iron-grass Natural Temperate Grassland - Nationally listed as *Critically Endangered* - prospective areas.

Map in 2009 brochure prepared by SA Department for Environment and Heritage



Grassland moving across Adelaide plains and around Gawler.

Iron-grass Natural Temperate Grassland nationally listed as *Critically Endangered*

Map August 2011  
Commonwealth Dept of Environment etc.

Expanding Iron-grass natural temperate grassland indicative area (including after effect of EPBC issue in early 2011 with an area in Gawler Council.)



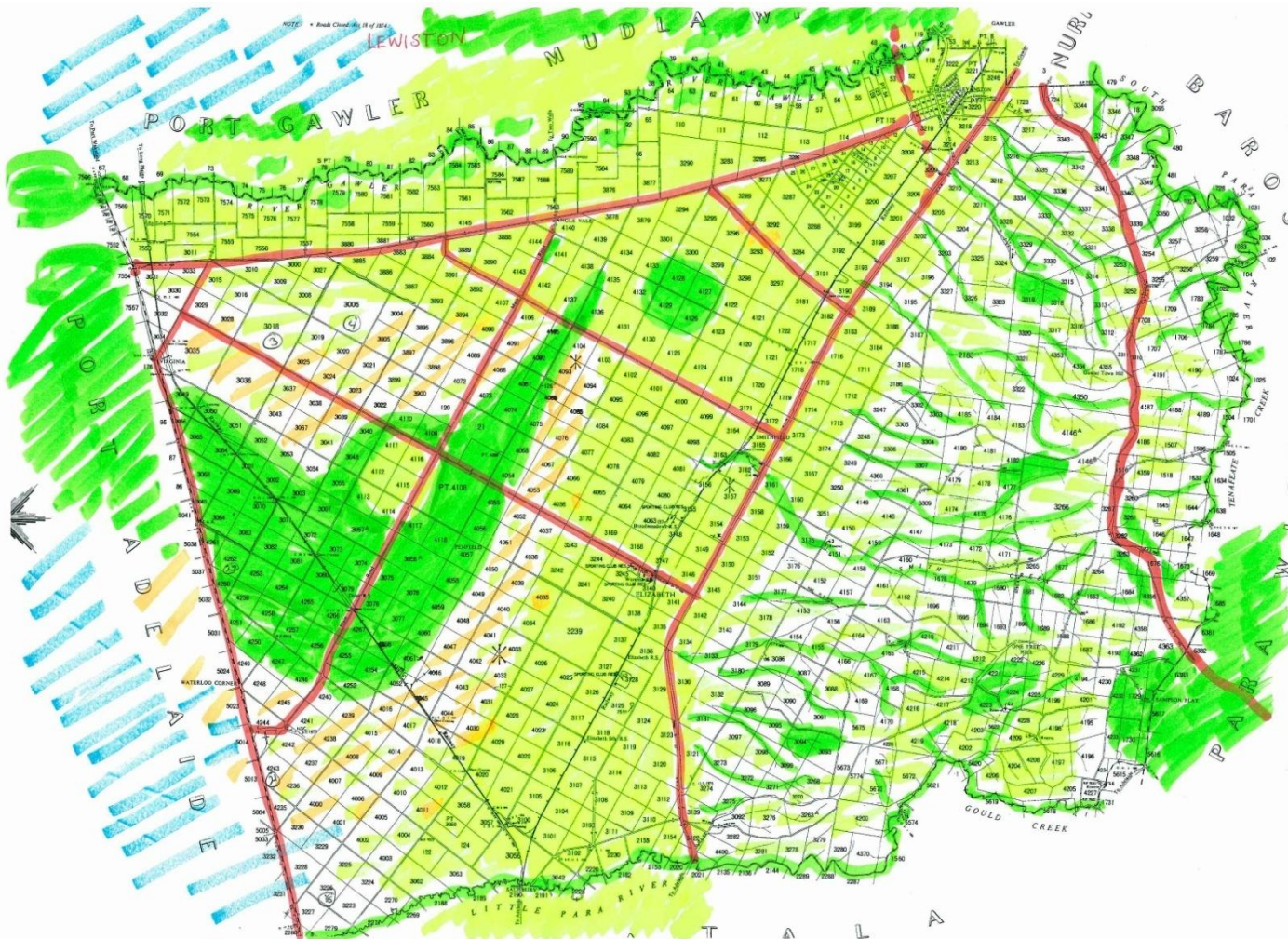
Hundred of Munno Para  
– Summary of Vegetation  
data from Survey  
Diagram Books and  
additional data 2012

Note grassland area  
near Little Para  
reservoir





Shackley A. Hundred of Munno Para & nearby – Vegetation data from Survey Diagram Books and interpretation of other information, 2012. The “monotonous plain” along Main North Road and to the west back in view. The scale of the oval patch in the middle of the Peachey Belt woodland can be gauged. My colouring in shows no other such areas but such vegetation usually show as much variation as consistency.



Yellow – Grassland

Green – Woodland

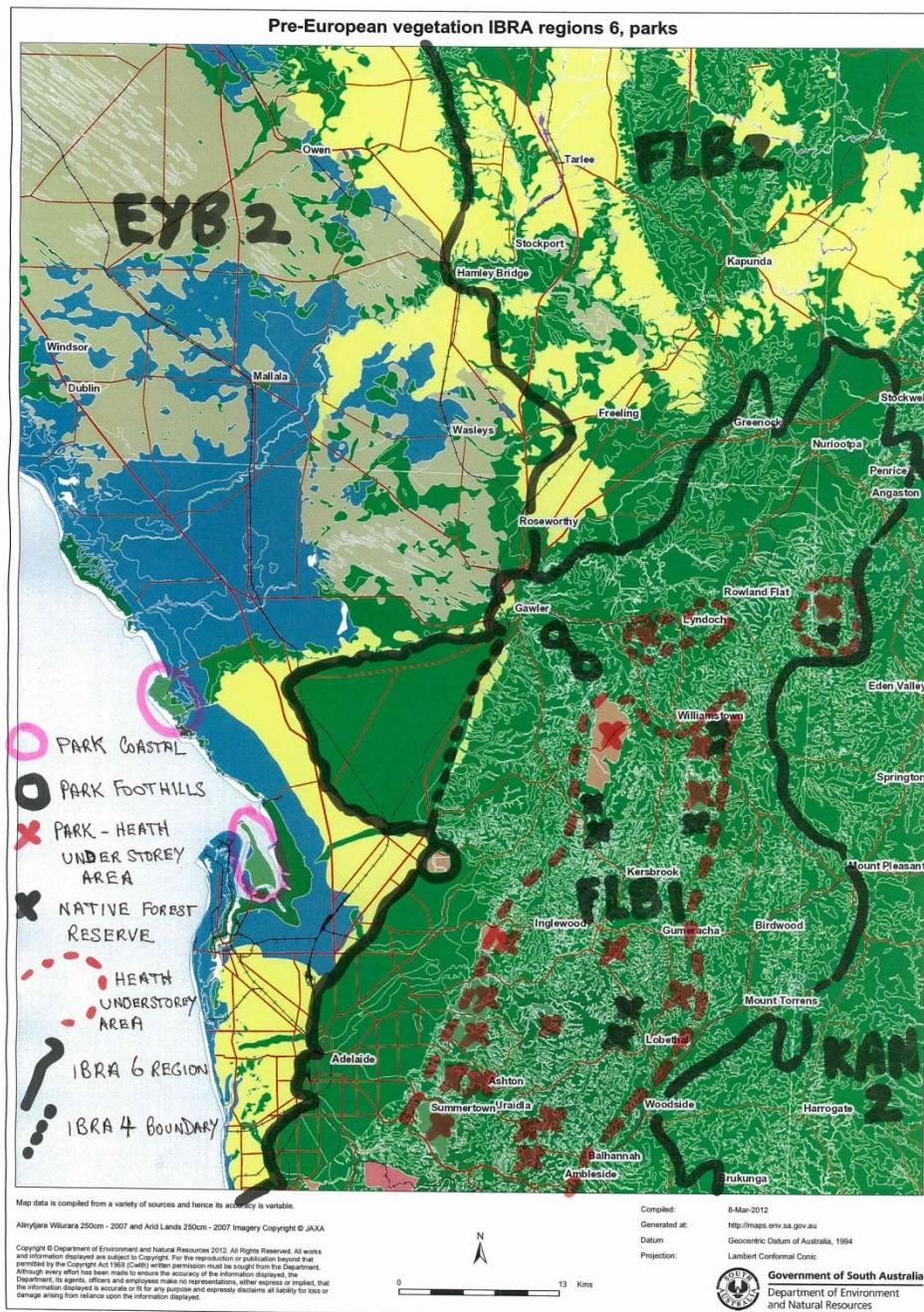
Orange – lightly wooded areas

Mixed Orange and Yellow – open /grassy woodland

Mixed Green & Yellow – Open /grassy woodland with main trees in creeklines plus separate patches (schematic)

Blue – Chenopd Shrubland grades to samphire in low lying areas





Pre-European vegetation map (DENR) showing IBRA region boundaries for Eyre-York Block and Flinders Lofty Block produced from DENR EnvMaps Website 2012 with hand-drawn additions by A. Shackley. Map shows massive bias in vegetation in reserves & IBRA confusion on Adelaide plains.

Dashed Black line – IBRA Eyre-York Block and Flinders Lofty Block region boundary in first versions based on Specht 1972

Red line shows approx. outer boundary of Woodland/Forest associations with heath understorey, including separate Sandy Creek/Altona area.

Red X – National Parks/Reserves

Black X – Native Forest reserves

Pink highlight outside heath understorey area – other parks at Port Gawler and Torrens Island (both coastal mangrove and samphire)

Black circles - grassy woodland reserves at Cobble Creek and Para Woodland.



My review

### **Survey records**

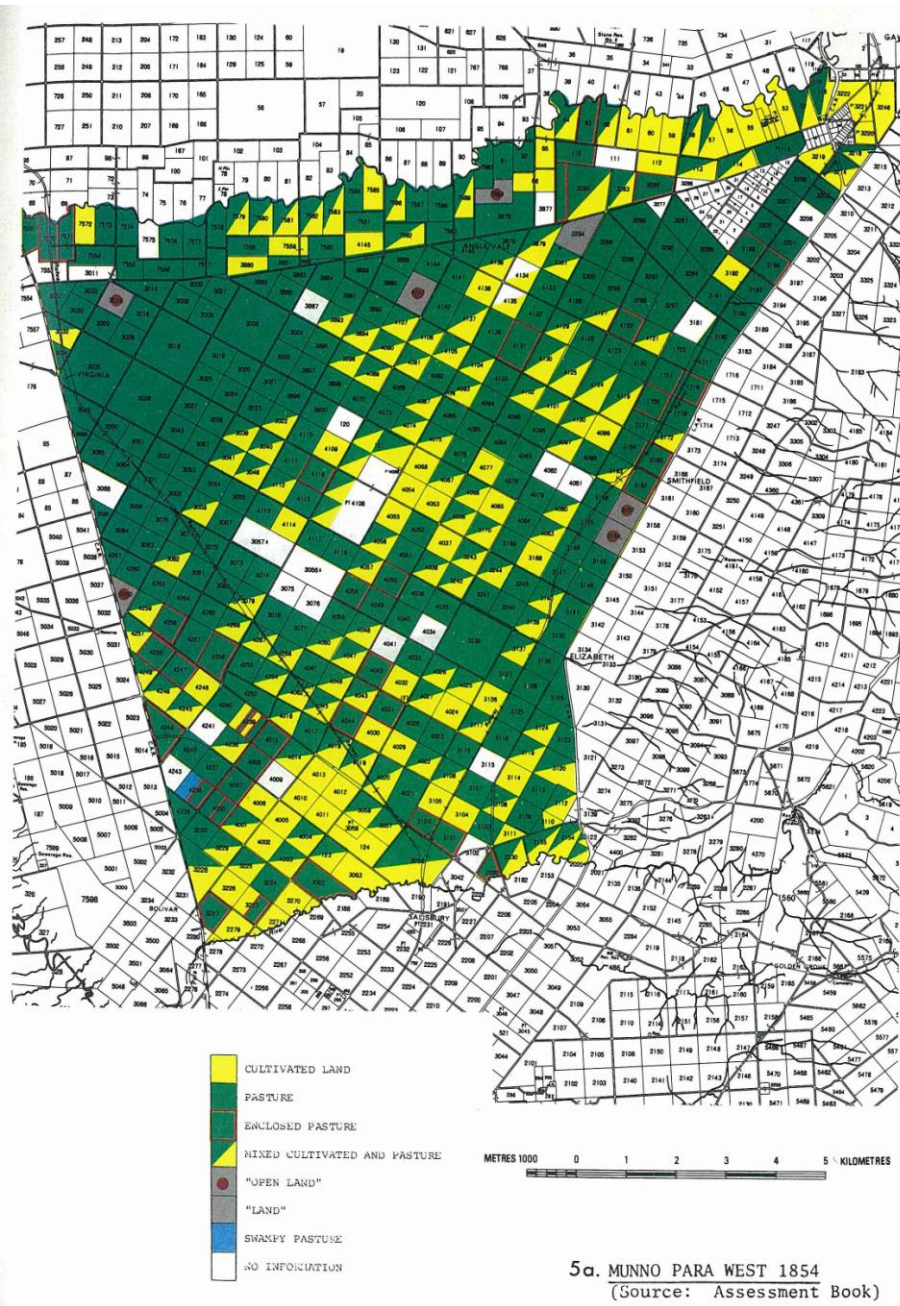
The early land survey records have some gaps in vegetation descriptions in the early years especially where early Special Surveys occurred. These focused on rivers and well watered areas. Surveys of Crown land on the Adelaide plains on a large scale started in 1845 and continued for some years. Land on the Gawler Plains around Smithfield and Angle Vale was not sold until after 1847 and occupation occurred gradually over a few years.

The Land Survey Diagram Book pages recorded the foothills as generally arable land with some timber and some areas of denser scrub such as around Para Wirra/Mount Gawler/Cockatoo Valley. The main areas where no notes exist are often the areas described by early writers as the barren plains - with nothing to report (no water, timber, scrub etc as usually noted) . Pressure to get surveys completed may have been a factor or the notes may have been lost.

### **Land use**

Grazing licences were issued for some of these areas of Crown land during the 1840s but these did not allow clearing of land and who would invest in clearing land on an annual licence which had no tenure security. When sale of Crown land did occur on the Adelaide plains it is interesting to record that land in the Peachey Belt scrub area was taken up at a similar rate as land in the open plains. That makes little sense from an agricultural point of view but is consistent with a big demand for wood from places such as the steam operated flour mills which were being established at Dry Creek, Adelaide and Port Adelaide and which had big demands on wood for fuel.

Records of the District Council of Munno Para West (for rate purposes) which date from 1854 record the pattern of land use for the Adelaide Plains. By 1854 about a quarter of the 80 acre lots in the area had a residence. Much of the land is still recorded as part cleared or grazing in 1854.



District Council of Munno Para west – land use records for council rates 1854 from Smith Derek 1979 p 19.

Yellow – Cultivated land

Green – Pasture

Yellow/Green – Mixed Cultivated and Pasture

Red lined – Enclosed pasture

Where did the misunderstanding come from?

There has grown up a jointly agreed (mis)understanding between farmers and environmentalists that in the early years farmers cleared a lot of trees with a lot of hard work. Environmentalists usually want/ed the trees put back to “restore what has been cleared”. A mutually satisfying explanation.

People go on visits to the parks in the Adelaide Hills or Enfield Cemetery scrub to “see what the original vegetation looked like” and then go home and plant trees and shrubs instead of herbs and grasses. We need a different mindset. Statements like the following is what has drove “One Million Trees” and “Three Million Trees”.

*“The vast mallee box (Eucalyptus porosa) woodland at Peachey Belt (near Virginia and Penfield) was cleared early by settlers eager to obtain arable land for cereal cropping. It is really an indication of the vast impact the actions of these early pioneers had, that all but a few vestiges of this once large area ... was cleared by 1848.”* Darrell Kraehenbuehl at page 42 in *Adelaide Nature of a City* Daniels Christopher B and Tait Catherine J (Eds) 2005.

Now I did my share of planting Western Australian eucalypts on our farm from State Flora predecessor in the 1970s. We are all learning.

Apart from the history records, as a “farm product” I see things differently. No one cleared land in the early years of SA unless they needed wood for building or could sell the wood. Farmers went somewhere where clearing land was not necessary. It cost too much to employ people to hand clear trees. Farmers on small farms did it in their spare time. Gentlemen farmers mainly thought about in the early days.

The areas that remain largely intact are the areas farmers did not want and these are almost entirely unrepresentative of the original ecosystems. We have lots of stringy bark forests and sandy scrubs all with heathy understorey in Parks. We have virtually no grasslands and only small patches of grassy woodlands in Parks and also generally with remnants.

Any analysis that relies on recent surveys and computer databases of what is around today or even has been around in the last 100 years to plan revegetation of existing farmland is fairly likely to be a off the mark. What is needed as well as remnant data is good analysis about what is missing and why it is missing.

**When travelling the countryside – if you don’t see trees or shrubs on roadsides – think of grasslands and ploughs – not trees and axes!**

## Threats to grasslands/grassy woodlands

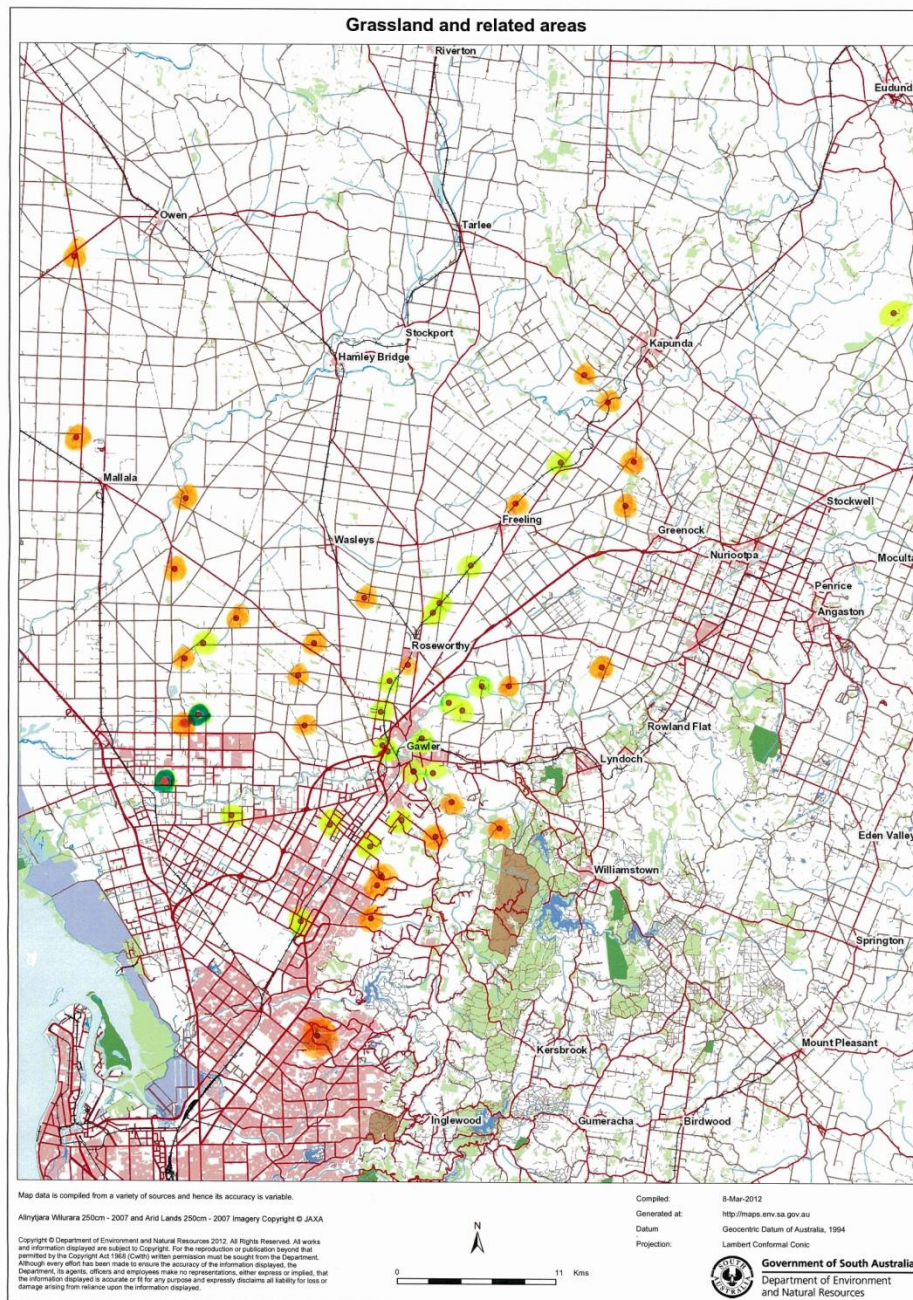
Tucker Peter *Guidelines to protect and enhance Eucalyptus Porosa Grassy Woodlands* 2005  
Trees for Life Page 9 has a list of “Common threats to grassy woodland ecosystems”.

- weed invasion
- further clearance, possibly due to lack of knowledge
- grazing by livestock, feral herbivores and over abundant native species
- over zealous weed control
- road construction and maintenance
- altered fire regimes
- inappropriate revegetation
- fire wood collection
- general lack of understanding from the public, and
- disease

I think we might add

- lack of disturbance, removal of disturbance factors – fire, animals and people digging.
- lack of previously present plant species
- lack of action by people with best understanding - trying to research/answer all concerns before doing something
- lack of acceptance that there are winners and losers over time in ecosystems - we probably need to reduce some species to allow others to survive/thrive
- management of small and scattered sites – wipe-out threats, reduced plant species diversity, lack of re-colonisation from adjoining land
- Gammage problem – how to replace/reinstate the missing Aboriginal management methods?





Examples of sites with grassland, grassy woodland associations or grassland species - Adelaide Plains and foothills. A Shackley map.

Yellow - grassland,  
Orange – grassy woodland,  
Green – grassy herb and shrubland

Dead Mans Pass Gawler <1 ha, 40 grassland sp.

Gawler East – irongrass grassland c 2ha 20 grassland species

Gawler Belt rail corridor – total 20 ha mainly woodland but some grassland areas c 2ha total of 65 grassland species, including 23 grasses and 5 Lomandra sp.

Roseworthy Freeling rail corridor – several areas c 10ha 70 grassland species, including 19 grasses, 10 daisy species and 5 Lomandra sp.

Stebonheath Rd Munno Para – <0.5ha roadside area near 20 grassland species Themeda, Bothriochloa, Digitaria brownii

Womma station area on Gawler-Adelaide rail line – Themeda, Calostemma, - about 15 species



## Dead Mans Pass Gawler grassland area February March 2012



Themeda, danthonia, stipa, enneapogon grassland –  
planted eucalypts top right, South Para corridor on left



Digitaria brownii – cotton panic grass



Setaria constricta – Pigeon grass, calostemma lilies





Dead Mans Pass Gawler grassland area February March 2012



*Convolvulus remotus*, Vanilla lilies



*Maireana enchylaenoides*, *Sida corrugata*



*Lomandra nana* (western limit of range) in *Themeda*.



*Lomandra* *multiflora*, *effusa* and *densiflora* (upper centre)



Dead Mans Pass Gawler grassland area February March 2012



*Panicum effusum* – Hairy panic



*Leiocarpa tomentosa* – woolly plover daisy



Short-beak echidna – local residents



*Sida corrugata* – Grassland Sida



Willaston regenerating grassland area March 2012. Council slashing only for 30 years since farming ceased – grassland returns.



*Enteropogon acicularis*, stipa species



*Maireana enchylaenoides* – Wingless fissure-plant



By-pass verge – themeda, stipas, herbs with DTEI tree planting – eucalyptus porosa and shrubs

Willaston paddock - species which have spread onto paddock after 30 years of Council slashing

- 2 Spear grass/*Austrostipa* species
- 2 Wallaby grass/*Austrodanthonia* species
- Curly Windmill grass (*Enteropogon acicularis*)
- Windmill grass (*Chloris truncata*)
- Black head grass (*Enneapogon nigricans*)
- Grassland Sida (*Sida corrugata/angustifolia*)
- Tar Vine (*Boerhavia dominii*)
- Caustic euphorbia (*Euphorbia drummondii*)
- Wingless Fissure-plant (*Maireana enchylaenoides*)
- Berry Saltbush (*Atriplex semibaccata*)

Example species which are nearby on road verge that have not yet spread onto the paddock

- Kangaroo grass *Themeda australis*, other *Stipas*,
- Irongrass/*Lomandra* species *effusa*, *multiflora*/ spp *dura*, *densiflora*
- Flax lily/*Dianella revoluta*
- New Holland daisies (2 or 3 species)
- Sticky Sword-sedge *Lepidosperma viscidum*
- Lagoon Saltbush *Atriplex suberecta*
- Vanilla lily *Arthropodium strictum*

**Willaston – missing species last 50 years.** Mostly based on excellent Darrell Kraehenbuehl Herbarium collections in the area in the 1960s.

Willaston Cemetery

<i>Beyeria lechenaultii</i>
<i>Caesia calliantha</i>
<i>Choretrum glomeratum</i> var. <i>chrysanthum</i>
<i>Chrysocephalum apiculatum</i>
<i>Correa reflexa</i>
<i>Cotula australis</i>
<i>Crassula colorata</i> var. <i>acuminata</i>
<i>Daucus glochidiatus</i>
<i>Eremophila longifolia</i>
<i>Exocarpos sparteus</i>
<i>Goodenia pinnatifida</i>
<i>Hypoxis glabella</i> var. <i>glabella</i>
<i>Leptorhynchos elongatus</i>
<i>Panicum effusum</i> var. <i>effusum</i>
<i>Pimelea curviflora</i> var. <i>sericea</i>
<i>Pomaderris paniculosa</i> ssp. <i>paniculosa</i>
<i>Pterostylis biseta</i>
<i>Pterostylis robusta</i>
<i>Sclerolaena diacantha</i>
<i>Senecio glossanthus</i>
<i>Setaria constrictum</i>
<i>Stackhousia monogyna</i>
<i>Teucrium racemosum</i>
<i>Thysanotus baueri</i>
<i>Vittadinia blackii</i>
<i>Wurmbea dioica</i> ssp. <i>dioica</i>

Willaston rail corridor & roadside records

<i>Acacia spinescens</i>
<i>Caladenia tensa</i>
<i>Calotis erinacea</i>
<i>Cheilanthes austrotenuifolia</i>
<i>Chenopodium desertorum</i> ssp. <i>microphyllum</i>
<i>Chenopodium pumilio</i>
<i>Daucus glochidiatus</i>
<i>Erodium crinitum</i>
<i>Eutaxia microphylla</i>
<i>Goodenia willisiana</i>
<i>Hyalosperma semisterile</i>
<i>Isoetopsis graminifolia</i>
<i>Kunzea pomifera</i>
<i>Lepidosperma viscidum</i>
<i>Lomandra leucocephala</i> ssp. <i>robusta</i>
<i>Minuria leptophylla</i>
<i>Opercularia turpis</i>
<i>Podolepis canescens</i>
<i>Podolepis jaceoides</i>
<i>Podolepis rugata</i> var. <i>rugata</i>
<i>Rhodanthe polygalifolia</i>
<i>Rhodanthe pygmaea</i>
<i>Thysanotus patersonii</i>



## Roseworthy to Freeling rail corridor February March 2012



Themeda, danthonia, stipa, grassland – planted old sugar gums and young eucalypts and shrubs



Pycnosorus globosus, danthonias, lomandras



Podolepis jaceoides, lomandra muliflora



Roadside weeds, some lomandras and native grasses – shows typical cracking clay soil of the area



## Roseworthy to Freeling rail corridor February March 2012



*Dichanthium sericeum* – silky bluegrass, *Aristida behriana*



*Themeda*, stipas, native oxalis, aristida – spreading  
*Acacia pycnantha* altering grassland



*Walwhalleya proluta* – Rigid panic



*Themeda*, stipas, native oxalis, aristida – spreading  
*Acacia pycnantha* and pepper trees

## What to do – some of my suggestions

- Change the pre-European maps on the State maps and websites
- Look at native vegetation heritage agreements to allow some scientifically based disturbance including potential for managed grazing of grasslands
- Promote grassland and understorey restoration and management projects.
- Look out for missing species - *Lotus australis* – “native vetch” [“weed at Virginia and Burnside – early diaries], *Swainsona* species – native clovers, various daisies - Yam daisy, *Leptorhynchus* sp., *Podolepis* sp., *Glycine*, *Lomandras*, missing grasses. Agree that local provenance needs to be more flexible for some species.
- Promote study of the role of grasslands in the Adelaide Hills biodiversity hot spot work/declining birds studies.

- Change the rules for Carbon contracts – what is the scientific basis for saying that contracts need to involve over-storey having a mature height of > 2 metres?
- Heresy. Agree that people/organisations promoting and planting some trees and shrubs in former grassland areas can do so on the proviso that in woodland areas they promote and plant areas of grassland?
- Have publicly available documentation for the applications and outcomes for the SA Significant Environmental Benefit similar to the EPBC process.
- Keep thinking and talking.