

EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 56: Floodplain Riparian Woodland

Description:

An open eucalypt woodland or open forest to 20 m tall over a medium to tall shrub layer with a ground layer consisting of amphibious and aquatic herbs and sedges. Occurs along the banks and floodplains of the larger meandering rivers and major creeks, often in conjunction with one or more floodplain wetland communities. Elevation and rainfall are relatively low and soils are fertile alluviums subject to periodic flooding and inundation.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	80 cm	15 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
20%	<i>Eucalyptus camaldulensis</i>	River Red-gum
	<i>Eucalyptus melliodora</i>	Yellow Box

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	2	5%	MS
Small Shrub	1	1%	SS
Medium Herb	4	10%	MH
Small or Prostrate Herb	2	1%	SH
Large Tufted Graminoid	2	10%	LTG
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	6	35%	MTG
Medium to Tiny Non-tufted Graminoid	2	10%	MNG
Bryophytes/Lichens	na	10%	BL
Total understorey projective foliage cover		90%	

LF Code	Species typical of at least part of EVC range	Common Name
T	<i>Acacia dealbata</i>	Silver Wattle
MS	<i>Hymenanthera dentata</i> s.l.	Tree Violet
MH	<i>Sida corrugata</i>	Variable Sida
MH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
MH	<i>Persicaria decipiens</i>	Slender Knotweed
SH	<i>Chamaesyce drummondii</i>	Flat Spurge
SH	<i>Azolla filiculoides</i>	Pacific Azolla
LTG	<i>Carex appressa</i>	Tall Sedge
LNG	<i>Phragmites australis</i>	Common Reed
LNG	<i>Eleocharis sphacelata</i>	Tall Spike-sedge
MTG	<i>Poa labillardierei</i>	Common Tussock-grass
MTG	<i>Chloris truncata</i>	Windmill Grass
MTG	<i>Themeda triandra</i>	Kangaroo Grass
MTG	<i>Aristida behriana</i>	Brush Wire-grass
MNG	<i>Pseudoraphis spinescens</i>	Spiny Mud-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge

EVC 56: Floodplain Riparian Woodland – Murray Fans bioregion

Recruitment:

Episodic/Flood - Desirable period between disturbances is 10 years.

Organic Litter:

40 % cover

Logs:

30 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high
SH	<i>Trifolium glomeratum</i>	Cluster Clover	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 66: Low Rises Woodland

Description:

Eucalypt woodland to 15 m tall on elevated plains and low rises with a diverse shrub understorey and grassy field layer. Occurs in a range of environmental settings that have resulted in well-drained surface soils mantling clay sub-soils.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	60 cm	20/ha
<i>Allocasuarina</i> spp.	40 cm	
<i>Callitris</i> spp.	40 cm	

Tree Canopy Cover:

% cover	Character Species	Common Name
20%	<i>Eucalyptus melliodora</i>	Yellow Gum
	<i>Eucalyptus microcarpa</i>	Grey Box
	<i>Callitris gracilis</i> ssp. <i>murrayensis</i>	Slender Cypress-pine
	<i>Callitris glaucophylla</i>	White Cypress-pine
	<i>Allocasuarina luehmannii</i>	Buloke

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	2	5%	T
Medium Shrub	5	15%	MS
Small Shrub	3	5%	SS
Large Herb	1	1%	LH
Medium Herb	3	5%	MH
Small or Prostrate Herb	2	1%	SH
Medium to Small Tufted Graminoid	7	25%	MTG
Medium to Tiny Non-tufted Graminoid	1	1%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C
Total understorey projective foliage cover		70%	

LF Code

Species typical of at least part of EVC range

Common Name

T	<i>Pittosporum angustifolium</i>	Weeping Pittosporum
T	<i>Myoporum platycarpum</i>	Sugarwood
MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Hakea tephrosperma</i>	Needlewood
MS	<i>Bursaria spinosa</i>	Sweet Bursaria
MS	<i>Acacia oswaldii</i>	Umbrella Wattle
SS	<i>Eutaxia microphylla</i>	Common Eutaxia
SS	<i>Olearia pimeleoides</i>	Pimelea Daisy-bush
MH	<i>Vittadinia cuneata</i>	Fuzzy New Holland Daisy
SH	<i>Maireana enchylaenoides</i>	Wingless Bluebush
SH	<i>Goodenia pinnatifida</i>	Cut-leaf Goodenia
SH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
SH	<i>Sida corrugata</i>	Variable Sida
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Elymus scaber</i> var. <i>scaber</i>	Common Wheat-grass
MTG	<i>Enteropogon acicularis</i>	Windmill Grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MNG	<i>Austrostipa elegantissima</i>	Feather Spear-grass
SC	<i>Clematis microphylla</i>	Small-leaved Clematis

EVC 66: Low Rises Woodland - Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

15% cover

Logs:

20m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
T	<i>Olea europaea</i>	Olive	high	high
MS	<i>Lycium ferocissimum</i>	Boxthorn	high	high
LH	<i>Centaurium tenuiflorum</i>	Slender Centaury	high	low
LH	<i>Gazania linearis</i>	Gazania	high	high
LH	<i>Opuntia robusta</i>	Wheel Cactus	high	high
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	high	low
MH	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	high	low
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	low
MH	<i>Petrorhagia velutina</i>	Velvety Pink	high	low
MH	<i>Oxalis pes-caprae</i>	Soursob	high	high
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low
MTG	<i>Briza maxima</i>	Large Quaking-grass	high	low
MTG	<i>Romulea rosea</i>	Onion Grass	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	high
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	low
MNG	<i>Aira elegantissima</i>	Delicate Hair-grass	high	low
MNG	<i>Ehrharta calycina</i>	Perennial Veldt Grass	high	high
MNG	<i>Vulpia myuros</i> f. <i>myuros</i>	Rat's-tail Fescue	high	high
MNG	<i>Juncus capitatus</i>	Capitate Rush	high	low
MNG	<i>Bromus rubens</i>	Red Brome	high	high
TTG	<i>Poa bulbosa</i>	Bulbous Meadow-grass	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 68: Creekline Grassy Woodland

Description:

Grass-dominated eucalypt woodland to 15 m tall with a range of amphibious herbs. Occurs along banks and adjacent wet flats of smaller intermittent creeks on coarse sands and stony alluvial soils and on the floodplains of larger rivers, in areas where annual rainfall is greater than 500 mm per annum.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	80 cm	15 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
15%	<i>Eucalyptus camaldulensis</i>	River Red Gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	2	5%	MS
Small Shrub	2	1%	SS
Medium Herb	5	10%	MH
Small or Prostrate Herb	1	1%	SH
Large Tufted Graminoid	2	15%	LTG
Medium to Small Tufted Graminoid	7	25%	MTG
Bryophytes/Lichens	na	10%	BL
Total understorey projective foliage cover		70%	

LF Code

Species typical of at least part of EVC range

Common Name

MS	<i>Acacia retinodes</i> var. <i>retinodes</i>	Wirilda
MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Hymenanthera dentata</i> s.l.	Tree Violet
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
MH	<i>Gonocarpus tetragynus</i>	Common Raspwort
MH	<i>Acaena echinata</i>	Sheep's Burr
MH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
LTG	<i>Austrostipa bigeniculata</i>	Kneed Spear-grass
LTG	<i>Carex appressa</i>	Tall Sedge
LTG	<i>Carex tereticaulis</i>	Sedge Rush
MTG	<i>Cyperus gunnii</i> ssp. <i>gunnii</i>	Flecked Flat-sedge
MTG	<i>Poa labillardierei</i>	Common Tussock-garss
MTG	<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	Stiped Wallaby-grass
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MNG	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass

Recruitment:

Continuous

Organic Litter:

40% cover

Logs:

20m/0.1 ha

EVC 68: Creekline Grassy Woodland - Murray Fans bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	low
LH	<i>Plantago lanceolata</i>	Ribwort	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	low	low
MH	<i>Anagallis arvensis</i>	Pimpernel	low	low
LTG	<i>Phalaris aquatica</i>	Toowoomba Canary-grass	low	high
MNG	<i>Briza maxima</i>	Large Quaking-grass	high	low
MNG	<i>Romulea rosea</i>	Onion Grass	high	low
MNG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MNG	<i>Briza minor</i>	Lesser Quaking-grass	high	low
MNG	<i>Aira elegantissima</i>	Delicate Hair-grass	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 86: Woorinen Sands Mallee

Description:

Mallee shrubland to 7 m tall, typically supporting a hummock grass (*Triodia* spp.) dominated understorey. This EVC could be considered intermediate between the heavier soil mallee woodlands and the lighter sandy soil mallee vegetation predominant on Lowan (siliceous) sand.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	15 cm	30/ha

Tree Canopy Cover:

% cover	Character Species	Common Name
25%	<i>Eucalyptus dumosa</i>	Dumosa Mallee
	<i>Eucalyptus leptophylla</i>	Slender-leaf Mallee
	<i>Eucalyptus socialis</i>	Grey Mallee

Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	4	5%	MS
Small Shrub	2	10%	SS
Prostrate Shrub	1	5%	PS
Medium Herb	6	5%	MH
Small or Prostrate Herb*	6	5%	SH
Hummock Grass	1	15%	HG
Medium to Small Tufted Graminoid	3	5%	MTG
Medium to Tiny Non-tufted Graminoid	1	1%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

* Largely seasonal life form

Total understorey projective foliage cover 65%

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Melaleuca lanceolata</i> ssp. <i>lanceolata</i>	Moonah
MS	<i>Myoporum platycarpum</i>	Sugarwood
MS	<i>Dodonaea bursariifolia</i>	Small Hop-bush
MS	<i>Acacia willhelmiana</i>	Dwarf Nealie
SS	<i>Sclerolaena parviflora</i>	Mallee Copperburr
SS	<i>Halgania cyanea</i>	Rough Halgania
SS	<i>Sclerolaena diacantha</i>	Grey Copperburr
SS	<i>Westringia rigida</i>	Stiff Westringia
LH	<i>Helichrysum leucopsidium</i>	Satin Everlasting
LH	<i>Waitzia acuminata</i> var. <i>acuminata</i>	Orange Immortelle
MH	<i>Podolepis capillaris</i>	Invisible Daisy
MH	<i>Goodenia willisiana</i>	Sandhill Goodenia
MH	<i>Vittadinia dissecta</i>	Dissected New Holland Daisy
MH	<i>Podothea angustifolia</i>	Sticky Long-heads
SH	<i>Actinobole uliginosum</i>	Flannel Cudweed
SH	<i>Calotis hispidula</i>	Hairy Burr-daisy
SH	<i>Crassula sieberiana</i>	Australian Stonecrop
SH	<i>Ptilotus seminudis</i>	Rabbit-tails
HG	<i>Triodia scariosa</i>	Porcupine Grass
MTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Lomandra effusa</i>	Scented Mat-rush
MTG	<i>Lomandra leucocephala</i> ssp. <i>robusta</i>	Woolly Mat-rush
MTG	<i>Austrostipa elegantissima</i>	Feather Spear-grass

EVC 86: Woorinen Sands Mallee - Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

15% cover

Logs:

10m/0.1 ha (note: large log class does not apply)

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
T	<i>Olea europaea</i>	Olive	high	high
LH	<i>Brassica tournefortii</i>	Mediterranean Turnip	high	high
LH	<i>Opuntia</i> spp.	Prickly Pear	high	high
MH	<i>Gazania linearis</i>	Gazania	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 91: Loamy Sands Mallee

Description:

Semi-arid low mallee shrubland to 5 m tall, typically supporting scattered shrubs above a hummock grass field layer. Typically occurs on deep drifts of Lowan sands in the lee of ridge systems or occupying dune crests and swales in the parabolic and irregularly arranged dune in the Central Mallee and Sunset Country.

Tree Canopy Cover:

% cover	Character Species	Common Name
25%	<i>Eucalyptus incrassata</i>	Yellow Mallee
	<i>Eucalyptus leptophylla</i>	Slender-leaf Mallee
	<i>Eucalyptus socialis</i>	Grey Mallee

Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	5	20%	MS
Small Shrub	5	10%	SS
Large Herb	2	1%	LH
Medium Herb	6	10%	MH
Small or Prostrate Herb	2	1%	SH
Hummock Grass	1	5%	HG
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	3	5%	MTG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C
Total understorey projective foliage cover		60%	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Callitris verrucosa</i>	Scrub Cypress-pine
MS	<i>Leptospermum coriaceum</i>	Mallee Tea-tree
MS	<i>Acacia ligulata</i>	Sandhill Wattle
MS	<i>Bertya mitchellii</i>	Mitchell Bertya
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
SS	<i>Hibbertia virgata</i>	Twiggy Guinea-flower
SS	<i>Halgania cyanea</i>	Rough Halgania
SS	<i>Brachyloma ericoides</i> ssp. <i>ericoides</i>	Brush Heath
LH	<i>Helichrysum leucopsidium</i>	Satin Everlasting
MH	<i>Podrothea angustifolia</i>	Sticky Long-heads
MH	<i>Millotia tenuifolia</i> var. <i>tenuifolia</i>	Soft Millotia
MH	<i>Glischrocaryon behrii</i>	Golden Pennants
MH	<i>Podolepis capillaris</i>	Invisible Plant
SH	<i>Actinobole uliginosum</i>	Flannel Cudweed
SH	<i>Millotia muelleri</i>	Common Bow-flower
SH	<i>Calotis hispidula</i>	Hairy Burr-daisy
HG	<i>Triodia scariosa</i>	Porcupine Grass
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Lomandra leucocephala</i> ssp. <i>robusta</i>	Woolly Mat-rush
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Lomandra collina</i>	Pale Mat-rush
SC	<i>Thysanotus patersonii</i>	Twining Fringe-lily

EVC 91: Loamy Sands Mallee - Murray Fans bioregion

Recruitment:

Episodic/Fire. Desirable period between disturbances is 20 years.

Organic Litter:

15% cover

Logs:

5m/0.1 ha (note: large log class does not apply)

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MNG	<i>Ehrharta calycina</i>	Perennial Veldt Grass	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 96: Ridged Plains Mallee

Description:

Open, quite grassy mallee woodland to 10 m tall, typical of the gently undulating "plains" of the Wimmera and Southern Mallee. Soils are somewhat variable but are typically duplex with grey or brown sandy clay loam or clay loam topsoils of aeolian origin.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	30 cm	15/ha
<i>Allocasuarina luehmannii</i>	40 cm	

Tree Canopy Cover:

% cover	Character Species	Common Name
10%	<i>Eucalyptus dumosa</i>	Dumosa Mallee
	<i>Eucalyptus behriana</i>	Bull Mallee
	<i>Allocasuarina luehmannii</i>	Buloke

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	3	5%	MS
Small Shrub	3	10%	SS
Prostrate Shrub	1	1%	PS
Large Herb	2	5%	LH
Medium Herb*	5	10%	MH
Small or Prostrate Herb*	5	15%	SH
Large Tufted Graminoid	1	5%	LTG
Large Non-tufted Graminoid	1	1%	LNG
Medium to Small Tufted Graminoid	3	20%	MTG
Medium to Tiny Non-tufted Graminoid	1	1%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	20%	S/C

* Largely seasonal lifeform

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Acacia melvillei</i>	Myall
MS	<i>Acacia oswaldii</i>	Umbrella Wattle
MS	<i>Eremophila longifolia</i>	Berrigan
SS	<i>Maireana brevifolia</i>	Short-leaf Bluebush
SS	<i>Sclerolaena diacantha</i>	Grey Copperburr
SS	<i>Rhagodia spinescens</i>	Hedge Saltbush
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
PS	<i>Atriplex semibaccata</i>	Berry Saltbush
MH	<i>Einadia nutans</i> ssp. <i>nutans</i>	Nodding Saltbush
MH	<i>Maireana enchylaenoides</i>	Wingless Bluebush
MH	<i>Maireana excavata</i>	Bottle Bluebush
MH	<i>Maireana enchylaenoides</i>	Wingless Bluebush
SH	<i>Chenopodium desertorum</i>	Frosted Goosefoot
SH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
SH	<i>Brachyscome lineariloba</i>	Hard-head Daisy
SH	<i>Hyalosperma</i> spp.	Sunray
LTG	<i>Austrostipa aristiglumis</i>	Plains Grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MTG	<i>Austrostipa scabra</i>	Rough Spear-grass
LNG	<i>Austrostipa platychaeta</i>	Flat-awned Spear-grass
MNG	<i>Austrostipa elegantissima</i>	Feather Spear-grass

EVC 96: Ridged Plains Mallee – Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

5% cover

Logs:

5m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MTG	<i>Critesion murinum</i>	Barley-grass	high	low
MTG	<i>Bromus diandrus</i>	Great Brome	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high
MH	<i>Marrubium vulgare</i>	Horehound	high	high
MNG	<i>Vulpia</i> spp.	Fescue	high	low
MS	<i>Lycium ferocissimum</i>	Boxthorn	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 97: Semi-arid Woodland

Description:

Non-eucalypt woodland or open forest to 12 m tall, of low rainfall areas. Occurs in a range of somewhat elevated positions not subject to flooding or inundation. The surface soils are typically light textured loamy sands or sandy loams.

Large trees:

Species	DBH(cm)	#/ha
<i>Casuarina</i> spp.	40 cm	20/ha
<i>Allocasuarina</i> spp.	40 cm	
<i>Callitris</i> spp.	40 cm	
<i>Myoporum platycarpum</i>	35 cm	

Tree Canopy Cover:

% cover	Character Species	Common Name
20%	<i>Casuarina pauper</i>	Belah
	<i>Allocasuarina luehmannii</i>	Buloke
	<i>Callitris gracilis</i> ssp. <i>murrayensis</i>	Slender Cypress-pine
	<i>Myoporum platycarpum</i>	Sugarwood

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	5	15%	MS
Small Shrub	5	20%	SS
Large Herb*	2	5%	LH
Medium Herb*	7	5%	MH
Small or Prostrate Herb*	2	5%	SH
Medium to Small Tufted Graminoid	2	10%	MTG
Medium to Tiny Non-tufted Graminoid	1	1%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	20%	S/C

* Largely seasonal life form

Total understorey projective foliage cover 75%

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Alectryon oleifolius</i> ssp. <i>canescens</i>	Cattle Bush
MS	<i>Acacia oswaldii</i>	Umbrella Wattle
MS	<i>Hakea tephrosperma</i>	Hooked Needlewood
MS	<i>Hakea leucoptera</i> ssp. <i>leucoptera</i>	Silver Needlewood
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
SS	<i>Sclerolaena diacantha</i>	Grey Copperburr
SS	<i>Olearia pimeleoides</i>	Pimelea Daisy-bush
SS	<i>Rhagodia spinescens</i>	Hedge Saltbush
MH	<i>Einadia nutans</i> ssp. <i>nutans</i>	Nodding Saltbush
MH	<i>Vittadinia dissecta</i> s.l.	Dissected New Holland Daisy
MH	<i>Calandrinia eremaea</i>	Small Purslane
MH	<i>Crassula colorata</i>	Dense Crassula
SH	<i>Actinobole uliginosum</i>	Flannel Cudweed
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MTG	<i>Austrostipa</i> spp.	Spear-grass
MNG	<i>Austrostipa elegantissima</i>	Feather Spear-grass

EVC 97: Semi-arid Woodland - Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

20% cover

Logs:

20m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Brassica tournefortii</i>	Mediterranean Turnip	high	high
LH	<i>Reichardia tingitana</i>	Reichardia	high	low
MH	<i>Silene</i> spp.	Catchfly	high	high
SH	<i>Medicago minima</i>	Little Medic	high	high
MTG	<i>Schismus barbatus</i>	Arabian Grass	high	high
MTG	<i>Pentaschistis airoides</i> ssp. <i>airoides</i>	False Hair-grass	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	high
MNG	<i>Critesion murinum</i> subsp. <i>glaucum</i>	Blue Barley-grass	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 98: Semi-arid Chenopod Woodland

Description:

Sparse, low non-eucalypt woodland to 12 m tall of the arid zone with a tall open chenopod shrub-dominated understorey to a treeless, tall chenopod shrubland to 3 m tall. This EVC may occur as either a woodland (typically with a very open structure but tree cover >10%) or a shrubland (tree cover <10%) with trees as an occasional emergent.

+ woodland only components (ignore when assessing shrubland areas and standardise final score as appropriate)

Large trees⁺:

Species	DBH(cm)	#/ha
<i>Casuarina pauper</i>	40 cm	15/ha
<i>Allocasuarina luehmannii</i>	40 cm	
<i>Callitris gracilis</i>	40 cm	
<i>Myoporum platycarpum</i>	35 cm	

Tree Canopy Cover⁺:

% cover	Character Species	Common Name
15%	<i>Casuarina pauper</i>	Belah
	<i>Allocasuarina luehmannii</i>	Buloke
	<i>Myoporum platycarpum</i>	Sugarwood
	<i>Callitris gracilis</i> ssp. <i>murrayensis</i>	Slender Native Pine

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree ⁺		5%	IT
Understorey Tree or Large Shrub ⁺	3	10%	T
Medium Shrub	2	40%	MS
Small Shrub	4	15%	SS
Prostrate Shrub	1	1%	PS
Large Herb*	2	5%	LH
Medium Herb*	6	15%	MH
Small or Prostrate Herb*	8	15%	SH
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	2	5%	MTG
Medium to Tiny Non-tufted Graminoid	1	1%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	30%	S/C

* Largely seasonal life form

LF Code	Species typical of at least part of EVC range	Common Name
T ⁺	<i>Alectryon oleifolius</i> ssp. <i>canescens</i>	Cattlebush
T ⁺	<i>Acacia melvillei</i>	Myall
T ⁺	<i>Hakea leucoptera</i> ssp. <i>leucoptera</i>	Silver Needlewood
MS	<i>Maireana pyramidata</i>	Shrubby Bluebush
MS	<i>Maireana sedifolia</i>	Pearl Bluebush
MS	<i>Atriplex nummularia</i>	Old Man Saltbush
MS	<i>Nitraria billardieri</i>	Nitre-bush
SS	<i>Sclerolaena obliquicuspis</i>	Limestone Copperburr
SS	<i>Sclerolaena tricuspis</i>	Three-spined Bassia
SS	<i>Sclerolaena divaricata</i>	Tangled Bassia
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
PS	<i>Sclerochlamys brachyptera</i>	Short-wing Saltbush
LH	<i>Polycalymma stuartii</i>	Poached-egg Daisy
MH	<i>Brachyscome lineariloba</i>	Hard-head Daisy
MH	<i>Osteocarpum acropterum</i> var. <i>deminutum</i>	Babbagia
MH	<i>Zygophyllum crenatum</i>	Hard-head Daisy
MH	<i>Zygophyllum ammophilum</i>	Sand Twin-leaf

EVC 98: Semi-arid Chenopod Woodland - Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

5% in shrubland

15% in woodland.

Logs⁺:

5m/0.1ha

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Brassica tournefortii</i>	Mediterranean Turnip	high	high
LH	<i>Salvia verbenaca</i>	Wild Sage	high	high
LH	<i>Sisymbrium erysimoides</i>	Smooth Mustard	high	high
MH	<i>Reichardia tingitana</i>	False Sow-thistle	low	low
MH	<i>Limonium</i> spp.	Sea-lavender	high	high
MH	<i>Silene apetala</i> var. <i>apetala</i>	Sand Catchfly	high	high
MH	<i>Erodium cicutarium</i>	Common Heron's-bill	high	low
MH	<i>Carrichtera annua</i>	Ward's Weed	high	high
SH	<i>Medicago minima</i>	Little Medic	high	high
MTG	<i>Schismus barbatus</i>	Arabian Grass	high	high
MTG	<i>Crotalaria murinum</i> ssp. <i>glaucum</i>	Blue Barley-grass	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high
MNG	<i>Vulpia</i> spp.		high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 101: Samphire Shrubland

Description:

Low open shrub layer to 0.5 m of succulent chenopods on saline clay pans. Found in association with the various halite salinas that have developed within evaporative basins or 'boinkas'.

Life forms:

Life form	#Spp	%Cover	LF code
Small Shrub	4	20%	SS
Medium Herb	7	5%	MH
Small or Prostrate Herb	3	5%	SH
Medium to Small Tufted Graminoid	2	1%	MTG
Medium to Tiny Non-tufted Graminoid	2	1%	MNG
Soil Crust	na	10%	S/C
Total understorey projective foliage cover		30%	

LF Code	Species typical of at least part of EVC range	Common Name
SS	<i>Halosarcia pruinosa</i>	Bluish Glasswort
SS	<i>Halosarcia halocnemoides</i> ssp. <i>halocnemoides</i>	Grey Glasswort
SS	<i>Halosarcia pergranulata</i>	Blackseed Glasswort
SS	r <i>Frankenia sessilis</i>	Small-leaf Sea-heath
MH	<i>Senecio glossanthus</i>	Slender Groundsel
MH	<i>Hymenolobus procumbens</i>	Oval Purse
MH	<i>Brachyscome lineariloba</i>	Hard-head Daisy
MH	r <i>Brachyscome exilis</i>	Finger-leaved Daisy
SH	<i>Disphyma crassifolium</i> ssp. <i>clavellatum</i>	Rounded Noon-flower
SH	<i>Pogonolepis muelleriana</i>	Stiff Cup-flower
SH	<i>Crassula sieberiana</i>	Sieber Crassula
SH	<i>Millotia muelleri</i>	Common Bow-flower
MTG	<i>Triglochin calcitrapum</i> s.l.	Spurred Arrowgrass
MNG	<i>Triglochin nanum</i>	Dwarf Arrowgrass

Recruitment:

Continuous

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Brassica tournefortii</i>	Mediterranean Turnip	high	high
MH	<i>Reichardia tingitana</i>	Reichardia	high	low
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Carrichtera annua</i>	Ward's Weed	high	high
MH	<i>Spergularia diandra</i>	Lesser Sand-spurrey	high	low
SH	<i>Medicago minima</i>	Little Medic	high	high
SH	<i>Spergularia rubra</i> s.l.	Red Sand-spurrey	high	low
MTG	<i>Critetion murinum</i> subsp. <i>glaucum</i>	Blue Barley-grass	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high
MNG	<i>Vulpia bromoides</i>	Rat's-tail Fescue	high	high
SNG	<i>Schismus barbata</i>	Arabian Grass	high	low
SNG	<i>Lamarckia aurea</i>	Golden-top	high	low
SNG	<i>Parapholis incurva</i>	Coast Barb-grass	high	high
SNG	<i>Critetion murinum</i> subsp. <i>glaucum</i>	Blue Barley-grass	high	high

EVC 101: Samphire Shrubland – Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 103: Riverine Chenopod Woodland (*syn.* Black Box Chenopod Woodland)

Description:

Eucalypt woodland to 15 m tall with a diverse shrubby and grassy understorey occurring on most elevated riverine terraces. Confined to heavy clay soils on higher level terraces within or on the margins of riverine floodplains (or former floodplains), naturally subject to only extremely infrequent incidental shallow flooding from major events if at all flooded.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus largiflorens</i>	40 cm	5/ha

Tree Canopy Cover:

%cover	Character Species	Common Name
10%	<i>Eucalyptus largiflorens</i>	Black Box
	<i>Acacia stenophylla</i>	River Coobah

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	3	30%	MS
Small Shrub	5	25%	SS
Prostrate Shrub	1	1%	PS
Medium Herb	5	5%	MH
Small or Prostrate Herb*	5	10%	SH
Medium to Small Tufted Graminoid	2	5%	MTG

* Largely seasonal life form

Total understorey projective foliage cover **50%**

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Atriplex nummularia</i>	Old-man Saltbush
MS	<i>Chenopodium nitrariaceum</i>	Nitre Goosefoot
MS	<i>Eremophila divaricata</i> ssp. <i>divaricata</i>	Spreading Emu-bush
SS	<i>Sclerolaena tricuspidis</i>	Streaked Copperburr
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
SS	<i>Atriplex lindleyi</i>	Flat-top Saltbush
SS	<i>Rhagodia spinescens</i>	Hedge Saltbush
PS	<i>Sclerochlamys brachyptera</i>	Short-wing Saltbush
MH	<i>Einadia nutans</i> ssp. <i>nutans</i>	Nodding Saltbush
MH	<i>Calocephalus sonderi</i>	Pale Beauty-heads
MH	<i>Senecio glossanthus</i>	Slender Groundsel
MH	<i>Brachyscome lineariloba</i>	Hard-head Daisy
SH	<i>Disphyma crassifolium</i> ssp. <i>clavellatum</i>	Rounded Noon-flower
SH	<i>Maireana pentagona</i>	Hairy Bluebush

Recruitment:

Continuous

Organic Litter:

5% cover

Logs:

5m/0.1 ha.

EVC 103: Riverine Chenopod Woodland (*syn.* Black Box Chenopod Woodland) - Murray Fans bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
T	<i>Olea europaea</i> subsp. <i>europaea</i>	Olive	low	high
MS	<i>Lycium ferocissimum</i>	Boxthorn	low	high
LH	<i>Sisymbrium erysimoides</i>	Smooth Mustard	high	high
LH	<i>Critesion</i> spp.	Barley-grass	high	low
LH	<i>Gazania linearis</i>	Gazania	high	high
LH	<i>Opuntia</i> spp.	Prickly Pear	low	high
LH	<i>Sisymbrium irio</i>	London Mustard	high	high
LH	<i>Psilocaulon granulicaule</i>	Noon-flower	high	high
MH	<i>Limonium sinuatum</i>	Notch-leaf Sea-lavender	high	high
MH	<i>Limonium lobatum</i>	Winged Sea-lavender	high	high
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	low
MH	<i>Mesembryanthemum nodiflora</i>	Ice-plant	high	high
MH	<i>Carrichtera annua</i>	Ward's Weed	high	high
MH	<i>Marrubium vulgare</i>	Horehound	high	high
MH	<i>Carpobrotus aequilaterus</i>	Angled Pigface	low	high
MH	<i>Silene apetala</i> var. <i>apetala</i>	Sand Catchfly	high	low
MH	<i>Medicago</i> spp.	Medic	high	low
MH	<i>Oxalis pes-caprae</i>	Soursob	high	high
MH	<i>Silene gallica</i>	French Catchfly	high	low
MH	<i>Silene nocturna</i>	Mediterranean Catchfly	high	low
SH	<i>Mesembryanthemum crystallinum</i>	Common Ice-plant	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	high
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	low
MTG	<i>Asphodelus fistulosus</i>	Onion Weed	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low
MNG	<i>Bromus</i> spp.	Brome	high	high
MNG	<i>Schismus barbatus</i>	Arabian Grass	high	low
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 104: Lignum Swamp

Description:

Typically treeless shrubland to 4 m, tall with robust (but sometimes patchy) growth of lignum. Widespread wetland vegetation type in low rainfall areas on heavy soils, subject to infrequent inundation resulting from overbank flows from rivers or local runoff.

Life forms:

Life form	#Spp	%Cover	LF code
Medium Shrub	1	20%	MS
Large Herb*	4	5%	LH
Medium Herb*	8	25%	MH
Small or Prostrate Herb*	2	10%	SH
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	2	5%	MTG
Medium to Tiny Non-tufted Graminoid*	2	5%	MNG
Scrambler or Climber	1	1%	SC
Soil crust*	na	10%	S/C

* Largely seasonal life form

Total understorey projective foliage cover

75%

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Muehlenbeckia florulenta</i>	Tangled Lignum
MS	<i>Chenopodium nitriaceum</i>	Nitre Goosefoot
SS	<i>Sclerolaena tricuspidis</i>	Three-spined Bassia
SS	<i>Sclerolaena muricata</i>	Five-spined Bassia
LH	<i>Rumex</i> spp.	Dock
MH	<i>Marsilea drummondii</i>	Common Nardoo
MH	<i>Goodenia</i> spp.	Goodenia
MH	<i>Ranunculus</i> spp.	Buttercup
LNG	<i>Eragrostis australasica</i>	Cane Grass
MNG	<i>Eragrostis infecunda</i>	Barren Cane grass
MTG	<i>Juncus</i> spp.	Rush
MNG	<i>Eleocharis</i> spp.	Spike-sedge
SC	<i>Asperula gemella</i>	Twin-leaf Bedstraw

Recruitment:

Continuous

Organic Litter:

5% cover

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
SH	<i>Phyla canescens</i>	Lippia	high	high

EVC 104: Lignum Swamp - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 106: Grassy Riverine Forest

Description:

Occurs on the floodplain of major rivers, in a slightly elevated position where floods are infrequent, on deposited silts and sands, forming fertile alluvial soils. River Red Gum forest to 25 m tall with a groundlayer dominated by graminoids. Occasional tall shrubs present.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	90 cm	20 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
30%	<i>Eucalyptus camaldulensis</i>	River Red-gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	10%	T
Large Herb	2	10%	LH
Medium Herb	3	10%	MH
Medium to Small Tufted Graminoid	3	25%	MTG
Medium to Tiny Non-tufted Graminoid	3	10%	MNG
Bryophytes/Lichens	na	10%	BL
Total understorey projective foliage cover		75%	

LF Code	Species typical of at least part of EVC range	Common Name
T	<i>Acacia stenophylla</i>	Eumong
LH	<i>Wahlenbergia fluminalis</i>	River Bluebell
LH	<i>Senecio quadridentatus</i>	Cotton Fireweed
MH	<i>Goodenia fascicularis</i>	Silky Goodenia
MH	<i>Eclipta platyglossa</i>	Yellow Twin-heads
MTG	<i>Setaria jubiflora</i>	Warrego Summer-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge

Recruitment:

Continuous

Organic Litter:

40 % cover

Logs:

30 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Lactuca serriola</i>	Prickly Lettuce	high	low
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Centaurea melitensis</i>	Malta Thistle	high	low
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	low
MH	<i>Reichardia tingitana</i>	False Sow-thistle	high	low
MH	<i>Phyla canescens</i>	Fog-fruit	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MNG	<i>Bromus rubens</i>	Red Brome	high	low

EVC 106: Grassy Riverine Forest - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 107: Lake Bed Herbland

Description:

Herbland or shrubland to 0.5 m tall dominated by species adapted to drying mud within lake beds. Some evade periods of prolonged inundation as seed, others as dormant tuber-like rootstocks. Occupies drying deep-cracking mud of lakes on floodplains. Floods are intermittent but water may be retained for several seasons leading to active growth at the 'drying mud stage'.

Life forms:

Life form	#Spp	%Cover	LF code
Medium Shrub	2	5%	MS
Small Shrub	2	5%	SS
Medium Herb*	3	25%	MH
Small or Prostrate Herb*	3	20%	SH
Medium to Small Tufted Graminoid	2	5%	MTG

* Largely seasonal life form

Total understorey projective foliage cover **60%**

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Malva australiana</i> s.l.	Southern Hollyhock
MS	<i>Solanum simile</i>	Oondoroo
SS	<i>Glycyrrhiza acanthocarpa</i>	Southern Liquorice
SS	<i>Muehlenbeckia horrida</i> ssp. <i>horrida</i>	Spiny Lignum
MH	<i>Chenopodium pumilio</i>	Clammy Goosefoot
MH	<i>Chenopodium glaucum</i>	Glaucous Goosefoot
SH	<i>Glossostigma elatinooides</i>	Small Mud-mat
SH	<i>Glinus lotoides</i>	Hairy Carpet-weed
SH	<i>Mukia micrantha</i>	Mallee Cucumber

Recruitment:

Episodic/Flood. Desirable period between disturbances is 10 years.

Organic Litter:

5% cover

Weediness:

There are no consistent weeds in this EVC.

EVC 107: Lake Bed Herbland – Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 125: Plains Grassy Wetland

Description:

This EVC is usually treeless, but in some instances can include sparse Black Box *Eucalyptus largiflorens* or River Red Gum *Eucalyptus camaldulensis*. A sparse shrub component may also be present. The characteristic ground cover is dominated by grasses and small sedges and herbs. The vegetation is typically species-rich on the outer verges but is usually species-poor in the wetter central areas.

Life forms:

Life form	#Spp	%Cover	LF code
Large Herb	5	5%	LH
Medium Herb	11	20%	MH
Small or Prostrate Herb	6	10%	SH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	7	20%	MTG
Medium to Tiny Non-tufted Graminoid	3	30%	MNG
Bryophytes/Lichens	na	10%	BL

LF Code	Species typical of at least part of EVC range	Common Name
LH	<i>Rumex dumosus</i>	Wiry Dock
LH	<i>Brachyscome basaltica</i> var. <i>gracilis</i>	Woodland Swamp-daisy
LH	<i>Epilobium hirtigerum</i>	Hairy Willow-herb
LH	<i>Eryngium ovinum</i>	Blue Devil
MH	<i>Craspedia glauca</i> spp. agg.	Common Billy-buttons
MH	<i>Potamogeton tricaratus</i> s.l.	Floating Pondweed
MH	<i>Marsilea drummondii</i>	Common Nardoo
SH	<i>Lobelia concolor</i>	Poison Pratia
SH	<i>Limosella australis</i>	Austral Mudwort
SH	<i>Myriocephalus rhizocephalus</i>	Woolly-heads
SH	<i>Neopaxia australasica</i>	White Purslane
LTG	<i>Amphibromus nervosus</i>	Common Swamp Wallaby-grass
LTG	<i>Juncus flavidus</i>	Gold Rush
MTG	<i>Austrodanthonia duttoniana</i>	Brown-back Wallaby-grass
MTG	<i>Juncus holoschoenus</i>	Joint-leaf Rush
MTG	<i>Carex inversa</i>	Knob Sedge
MTG	<i>Amphibromus macrorhinus</i>	Long-nosed Swamp Wallaby-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Eragrostis infecunda</i>	Southern Cane-grass

Recruitment:

Episodic/Flood. Desirable period between disturbances is 5 years.

Organic Litter:

10% cover

Logs:

5 m/0.1 ha.(where trees are overhanging the wetland)

EVC 125: Plains Grassy Wetland – Murray Fans bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
LNG	<i>Avena fatua</i>	Wild Oat	high	low
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MTG	<i>Critesion hystrix</i>	Mediterranean Barley-grass	high	low
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 132: Plains Grassland

Description:

Treeless vegetation dominated by largely grass and herb life forms. Shrubs and trees may be also occasionally present.

Life forms:

Life form	#Spp	%Cover	LF code
Small Shrub	2	5%	SS
Large Herb	3	5%	LH
Medium Herb*	10	20%	MH
Small or Prostrate Herb*	3	5%	SH
Large Tufted Graminoid	1	5%	LTG
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	10	30%	MTG
Medium to Tiny Non-tufted Graminoid*	2	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	20%	S/C

* Largely seasonal life form

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Acacia oswaldii</i>	Umbrella Wattle
SS	<i>Sclerolaena napiformis</i>	Turnip Copperburr
SS	<i>Sclerolaena diacantha</i>	Grey Copperburr
SS	<i>Maireana decalvans</i>	Black Cotton-bush
SS	<i>Pimelea curviflora s.s.</i>	Curved Rice-flower
LH	<i>Ptilotus exaltatus</i>	Mulla Mulla
LH	<i>Eryngium ovium</i>	Blue Devil
LH	<i>Calocephalus citreus</i>	Lemon Beauty-heads
MH	<i>Calotis scabiosifolia</i>	Rough Burr-daisy
MH	<i>Goodenia pinnatifida</i>	Cut-leaf Goodenia
MH	<i>Sida corrugata</i>	Variable Sida
MH	<i>Ptilotus macrocephalus</i>	Feather Heads
SH	<i>Maireana pentagona</i>	Hairy Bluebush
SH	<i>Chamaesyce drummondii</i>	Flat Spurge
SH	<i>Pogonolepis muelleriana</i>	Stiff Cup-flower
LTG	<i>Austrostipa blackii</i>	Crested Spear-grass
LTG	<i>Austrostipa gibbosa</i>	Spurred Spear-grass
LTG	<i>Austrostipa aristiglumis</i>	Plump Spear-grass
MTG	<i>Austrostipa scabra</i>	Rough Spear-grass
MTG	<i>Austrostipa nodosa</i>	Knotty Spear-grass
MTG	<i>Whalleya proluta</i>	Rigid Panic
MTG	<i>Austrodanthonia duttoniana</i>	Brown-back Wallaby-grass
SC	<i>Convolvulus erubescens</i> spp. agg.	Pink Bindweed

Recruitment:

Episodic/Fire or Grazing. Desirable period between disturbances is 5 years.

Organic Litter:

10% cover

EVC 132: Plains Grassland – Murray Fans bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	<i>Lycium ferocissimum</i>	Boxthorn	high	high
LH	<i>Helminthotheca echioides</i>	Ox-tongue	high	low
LH	<i>Lepidium africanum</i>	Common Peppergrass	high	low
LH	<i>Salvia verbenaca</i>	Wild Sage	high	high
LH	<i>Echium plantagineum</i>	Patterson's Curse	high	high
LH	<i>Sisymbrium irio</i>	London Rocket	high	high
LH	<i>Marrubium vulgare</i>	Horehound	high	high
LNG	<i>Avena fatua</i>	Wild Oat	high	high
MH	<i>Limonium sinuatum</i>	Wild Oat	high	high
MH	<i>Arctotheca calendula</i>	Cape Weed	high	high
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MH	<i>Oxalis pes-caprae</i>	Sour sob	high	high
MH	<i>Plantago coronopus</i>	Buck's-horn Plantain	high	high
MH	<i>Spergularia rubra</i> s.l.	Red Sand-spurrey	high	low
MH	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	high	high
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	high
MH	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	high	high
MH	<i>Trifolium striatum</i>	Knotted Clover	high	low
MH	<i>Trifolium subterraneum</i>	Subterranean Clover	high	low
MH	<i>Hedypnois cretica</i>	Cretan Hedypnois	high	high
MNG	<i>Aira cupaniana</i>	Quicksilver Grass	high	low
MNG	<i>Avena barbata</i>	Bearded Oat	high	high
MNG	<i>Brachypodium distachyon</i>	False Brome	high	high
MNG	<i>Juncus capitatus</i>	Capitate Rush	high	high
MNG	<i>Vulpia muralis</i>	Wall Fescue	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	high
MTG	<i>Bromus diandrus</i>	Great Brome	high	high
MTG	<i>Critiesion hystrix</i>	Mediterranean Barley-grass	high	high
MTG	<i>Critiesion murinum</i>	Barley-grass	high	high
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	high
MTG	<i>Pentstemon airoides</i> ssp. <i>airoides</i>	False Hair-grass	high	low
MTG	<i>Poa bulbosa</i>	Bulbous Meadow-grass	high	high
MTG	<i>Romulea minutiflora</i>	Small-flower Onion-grass	high	high
MTG	<i>Romulea rosea</i>	Onion Grass	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	high
SH	<i>Medicago minima</i>	Little Medic	high	high
SH	<i>Medicago polymorpha</i>	Burr Medic	high	high
SH	<i>Trifolium glomeratum</i>	Cluster Clover	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 158: Chenopod Mallee

Description:

Open to very open mallee woodland to 12 m tall (almost invariably dominated by *Eucalyptus gracilis*) supported by thin Woorinen deposits typically overlying gypsiferous and sodic clays. In undisturbed remnants this EVC is characterised by the dominance of saltbushes and semi-succulent understorey shrubs.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	20 cm	20/ha

Tree Canopy Cover:

% cover	Character Species	Common Name
20%	<i>Eucalyptus gracilis</i>	Yorrell
	<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i>	Oil Mallee
	<i>Eucalyptus dumosa</i>	Dumosa Mallee

Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	1	5%	MS
Small Shrub	9	45%	SS
Medium Herb	3	5%	MH
Small or Prostrate Herb	2	10%	SH
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	15%	S/C
Total understorey projective foliage cover		65%	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Maireana pyramidata</i>	Black Bluebush
SS	<i>Atriplex lindleyi</i>	Baldoo
SS	<i>Atriplex vesicaria</i> ssp. <i>variabilis</i>	Bladder Salt-bush
SS	<i>Zygophyllum aurantiacum</i> ssp. <i>aurantiacum</i>	Shrubby Twin-leaf
SS	<i>Nitraria billardieri</i>	Nitre-bush
MH	<i>Eriochiton sclerolaenoides</i>	Woolly-fruit Bluebush
MH	<i>Zygophyllum apiculatum</i>	Pointed Twin-leaf
MH	<i>Zygophyllum crenatum</i>	Notched Twin-leaf
SH	<i>Calandrinia eremaea</i>	Small Purslane
SH	<i>Disphyma crassifolium</i> ssp. <i>clavellatum</i>	Rounded Noon-flower

Recruitment:

Continuous (excluding overstorey)

Organic Litter:

10% cover

Logs:

10m/0.1 ha (note: large log class does not apply)

EVC 158: Chenopod Mallee – Murray Fans bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Opuntia</i> spp.	Prickly Pear	low	high
LH	<i>Psilocaulon granulicaule</i>	Noon-flower	high	high
LH	<i>Gazania linearis</i>	Gazania	high	high
LH	<i>Salvia verbenaca</i> var. <i>vernalis</i>	Wild Sage	high	high
LH	<i>Critesion murinum</i> subsp. <i>leporinum</i>	Wall Barley-grass	high	low
LH	<i>Sisymbrium erysimoides</i>	Smooth Mustard	high	high
MH	<i>Carpobrotus aequilaterus</i>	Angled Pigface	low	high
MH	<i>Brassica tournefortii</i>	Mediterranean Turnip	high	high
MH	<i>Mesembryanthemum nodiflora</i>	Ice-plant	high	high
MH	<i>Carrichtera annua</i>	Ward's Weed	high	high
MH	<i>Marrubium vulgare</i>	Horehound	high	high
SH	<i>Mesembryanthemum crystallinum</i>	Common Ice-plant	high	high
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	low
MNG	<i>Schismus barbatus</i>	Arabian Grass	high	high
MNG	<i>Bromus</i> spp.	Brome	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 175: Grassy Woodland

Description:

A variable open eucalypt woodland to 15 m tall. Understorey includes a diverse ground layer of grasses and herbs. The shrub component is usually sparse. It occurs on sites with moderate fertility on gentle slopes on a range of geologies.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	70 cm	15 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
15%	<i>Eucalyptus microcarpa</i>	Grey Box
	<i>Eucalyptus melliodora</i>	Yellow Box

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	3	10%	MS
Small Shrub	4	5%	SS
Large Herb	3	5%	LH
Medium Herb	12	20%	MH
Large Tufted Graminoid	1	5%	LTG
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	19	40%	MTG
Medium to Tiny Non-tufted Graminoid	4	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria
MS	<i>Acacia acinacea</i> s.l.	Gold-dust Wattle
SS	<i>Templetonia stenophylla</i>	Leafy Templetonia
SS	<i>Pimelea curviflora</i> s.l.	Curved Rice-flower
SS	<i>Eutaxia microphylla</i>	Common Eutaxia
LH	<i>Wahlenbergia stricta</i>	Tall Bluebell
MH	<i>Asperula conferta</i>	Common Woodruff
MH	<i>Einadia nutans</i> ssp. <i>nutans</i>	Nodding Saltbush
MH	<i>Gonocarpus tetragynus</i>	Common Raspwort
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily
MTG	<i>Themeda triandra</i>	Kangaroo Grass
MTG	<i>Bothriochloa macra</i>	Red-leg Grass
MTG	<i>Poa sieberiana</i>	Grey Tussock-grass
MNG	<i>Austrostipa elegantissima</i>	Feather Spear-grass
SC	<i>Convolvulus erubescens</i> spp. agg.	Pink Bindweed

EVC 175: Grassy Woodland – Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

20 % cover

Logs:

15 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Plantago lanceolata</i>	Ribwort	high	low
LH	<i>Salvia verbenaca</i>	Wild Sage	high	high
LH	<i>Carduus tenuiflorus</i>	Winged Thistle	high	high
MH	<i>Petrorhagia velutina</i>	Velvety Pink	high	low
MH	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MH	<i>Parentucellia latifolia</i>	Red Bartsia	high	low
MH	<i>Spergularia rubra</i> s.l.	Red Sand-spurrey	high	low
MH	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	high	low
MH	<i>Anagallis arvensis</i>	Pimpernel	high	low
LNG	<i>Avena fatua</i>	Wild Oat	high	low
MTG	<i>Romulea minutiflora</i>	Small-flower Onion-grass	high	low
MTG	<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	Soft Brome	high	low
MTG	<i>Lolium loliaceum</i>	Stiff Rye-grass	high	low
MTG	<i>Lolium perenne</i>	Perennial Rye-grass	high	low
MTG	<i>Ehrharta longiflora</i>	Annual Veldt-grass	high	low
MTG	<i>Briza maxima</i>	Large Quaking-grass	high	low
MNG	<i>Dactylis glomerata</i>	Cocksfoot	high	high
MNG	<i>Vulpia muralis</i>	Wall Fescue	high	low
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low
MNG	<i>Bromus rubens</i>	Red Brome	high	low
MNG	<i>Aira elegantissima</i>	Delicate Hair-grass	high	low
MNG	<i>Aira cupaniana</i>	Quicksilver Grass	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 264: Sand Ridge Woodland

Description:

Open pine-box woodland to 15 m tall with a small or medium shrub layer of variable density and including a range of annual herbs, grasses and geophytes, in the dense ground layer. Occupies distinctive sandy rises (or sand mounts) adjacent to major rivers and wetlands. Very sandy, deep, free draining, moderately fertile soil, developed on sand blown up by wind action from a prior stream bed.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	70 cm	15 / ha
<i>Callitris glaucophylla</i>	40 cm	
<i>Allocasuarina luehmannii</i>	40 cm	

Tree Canopy Cover:

%cover	Character Species	Common Name
15%	<i>Eucalyptus melliodora</i>	Yellow Box
	<i>Callitris glaucophylla</i>	White Cypress-pine
	<i>Allocasuarina luehmannii</i>	Buloke

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	4	20%	MS
Small Shrub	3	10%	SS
Prostrate Shrub	2	5%	PS
Large Herb	2	5%	LH
Medium Herb	10	15%	MH
Small or Prostrate Herb	5	5%	SH
Large Tufted Graminoid	3	10%	LTG
Medium to Small Tufted Graminoid	8	15%	MTG
Ground Fern	1	5%	GF
Scrambler or Climber	1	5%	SC
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

LF Code

Species typical of at least part of EVC range

Common Name

MS	<i>Dodonaea viscosa</i>	Sticky Hop-bush
MS	<i>Banksia marginata</i>	Silver Banksia
SS	<i>Pultenaea tenuifolia</i>	Slender Bush-pea
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
PS	<i>Kennedia prostrata</i>	Running Postman
LH	<i>Senecio quadridentatus</i>	Cottony Fireweed
LH	<i>Senecio tenuiflorus</i>	Narrow-leaf Groundsel
MH	<i>Wahlenbergia gracilis</i> s.l.	Sprawling Bluebell
MH	<i>Wahlenbergia luteola</i>	Tufted Bluebell
MH	<i>Gonocarpus tetragynus</i>	Common Raspwort
SH	<i>Crassula sieberiana</i>	Sieber Crassula
SH	<i>Millotia tenuifolia</i> var. <i>tenuifolia</i>	Soft Millotia
SH	<i>Euchiton sphaericus</i>	Annual Cudweed
SH	<i>Stuartina muelleri</i>	Spoon Cudweed
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
LTG	<i>Dichelachne crinita</i>	Long-hair Plume-grass
MTG	<i>Poa sieberiana</i>	Grey Tussock-grass
MTG	<i>Elymus scaber</i> var. <i>scaber</i>	Common Wheat-grass
MTG	<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily
GF	<i>Pteridium esculentum</i>	Austral Bracken
SC	<i>Cassytha pubescens</i> s.s.	Downy Dodder-laurel

EVC 264: Sand Ridge Woodland – Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

10 % cover

Logs:

15 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	<i>Chrysanthemoides monilifera</i>	Boneseed	high	high
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MTG	<i>Bromus diandrus</i>	Great Brome	high	low
MNG	<i>Vulpia bromoides</i>	Rat's-tail Fescue	high	low
MNG	<i>Vulpia muralis</i>	Wall Fescue	high	low
MNG	<i>Vulpia myuros</i> f. <i>myuros</i>	Rat's-tail Fescue	high	low
MNG	<i>Aira elegantissima</i>	Delicate Hair-grass	high	low
MNG	<i>Aira caryophylla</i>	Silvery Hair-grass	high	low
MNG	<i>Ehrharta calycina</i>	Perennial Veldt-grass	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 292: Red Gum Swamp

Description:

Open woodland to 15 m tall with a diverse understorey dominated by sedgy or grassy-herbaceous aquatics and species tolerant of intermittent to seasonal inundation. Occurs on alluvial plains in the seasonally wet depressions of shallow drainage lines or prior stream meanders, typically associated with heavy paludal soils, sometimes with gilgai development. The annual rainfall across its distribution is generally below 700 mm, and the period of inundation may range from 2 to 6 months.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	80 cm	10 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
10%	<i>Eucalyptus camaldulensis</i>	River Red-gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	10%	T
Medium Herb	1	15%	MH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	2	10%	MTG
Medium to Tiny Non-tufted Graminoid	2	40%	MNG
Bryophytes/Lichens	na	10%	BL
Total understorey projective foliage cover		90%	

LF Code	Species typical of at least part of EVC range	Common Name
MH	<i>Potamogeton tricaratus</i> s.l.	Floating Pondweed
MH	<i>Gratiola peruviana</i>	Austral Brooklime
SH	<i>Lobelia pratioides</i>	Poison Lobelia
LTG	<i>Juncus flavidus</i>	Gold Rush
LTG	<i>Carex tereticaulis</i>	Hollow Sedge
MTG	<i>Triglochin procerum</i> s.l.	Water Ribbons
MTG	<i>Whalleya prolata</i>	Rigid Panic
MTG	<i>Lachnagrostis filiformis</i> var. <i>filiformis</i>	Common Blown-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Eragrostis infecunda</i>	Southern Cane-grass

Recruitment:

Episodic/Flood. Desirable period between disturbances is 5 years.

Organic Litter:

20 % cover

Logs:

15 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
SH	<i>Callitriche hamulata</i>	Thread Water-starwort	high	low

EVC 292: Red Gum Swamp – Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 295: Riverine Grassy Woodland

Description:

Occurs on the floodplain of major rivers, in a slightly elevated position where floods are rare, on deposited silts and sands, forming fertile alluvial soils. River Red Gum woodland to 20 m tall with a groundlayer dominated by graminoids and sometimes lightly shrubby or with chenopod shrubs.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	80 cm	15 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
20%	<i>Eucalyptus camaldulensis</i>	River Red-gum
	<i>Eucalyptus largiflorens</i>	Black Box

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Small Shrub	4	10%	SS
Large Herb	4	10	LH
Medium Herb	2	10%	MH
Small or Prostrate Herb	5	10%	SH
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	5	20%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Bryophytes/Lichens	na	10%	BL
Total understorey projective foliage cover		75%	

LF Code	Species typical of at least part of EVC range	Common Name
SS	<i>Sclerolaena muricata</i> var. <i>villosa</i>	Grey Roly-poly
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
SS	<i>Maireana decalvans</i>	Black Cotton-bush
SS	<i>Chenopodium curvispicatum</i>	Cottony Saltbush
LH	<i>Wahlenbergia fuminalis</i>	River Bluebell
LH	<i>Rumex brownii</i>	Slender Dock
LH	<i>Senecio quadridentatus</i>	Cotton Fireweed
MH	<i>Einadia nutans</i> ssp. <i>nutans</i>	Nodding Saltbush
MH	<i>Atriplex semibaccata</i>	Berry Saltbush
MH	<i>Atriplex eardleyae</i>	Small Saltbush
MH	<i>Sida corrugata</i>	Variable Sida
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Austrostipa scabra</i>	Rough Spear-grass
MTG	<i>Carex inversa</i>	Knob Sedge
MTG	<i>Juncus subsecundus</i>	Finger Rush

Recruitment:

Continuous

Organic Litter:

10 % cover

Logs:

20 m/0.1 ha.

EVC 295: Riverine Grassy Woodland – Murray Fans bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MTG	<i>Bromus hordaceus</i> ssp. <i>hordaceus</i>	Soft Brome	high	high
MTG	<i>Critesion murinum</i> ssp. <i>leporinum</i>	Wall Barley-grass	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 641: Riparian Woodland

Description:

Occurs beside permanent streams, typically on narrow alluvial deposits. Woodland to 15 m tall generally dominated by *Eucalyptus camaldulensis* over a tussock grass-dominated understorey. Tall shrubs may be present and amphibious herbs may occur in occasional ponds and beside creeks. While flooding may be common, sites are rarely inundated for lengthy periods.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	80 cm	15 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
10%	<i>Eucalyptus camaldulensis</i>	River Red-gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	2	10%	T
Medium Shrub	2	10%	MS
Large Herb	4	10%	LH
Medium Herb	5	10%	MH
Small or Prostrate Herb	1	1%	SH
Large Tufted Graminoid	3	10%	LTG
Medium to Small Tufted Graminoid	4	30%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Scrambler or Climber	1	5%	SC
Bryophytes/Lichens	na	10%	BL

LF Code

Species typical of at least part of EVC range

Common Name

T	<i>Acacia dealbata</i>	Silver Wattle
MS	<i>Exocarpos strictus</i>	Pale-fruit Ballart
LH	<i>Wahlenbergia gracilis</i> s.s.	Sprawling Bluebell
LH	<i>Myriophyllum crispatum</i>	Upright Water-milfoil
LH	<i>Senecio quadridentatus</i>	Cotton Fireweed
LH	<i>Wahlenbergia fluminalis</i>	River Bluebell
MH	<i>Rumex brownii</i>	Slender Dock
MH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
MH	<i>Mentha australis</i>	River Mint
MH	<i>Acaena novae-zelandiae</i>	Bidgee-widgee
SH	<i>Dichondra repens</i>	Kidney-weed
LTG	<i>Cyperus gunnii</i> ssp. <i>gunnii</i>	Flecked Flat-sedge
LTG	<i>Carex appressa</i>	Tall Sedge
LTG	<i>Deyeuxia quadriseta</i>	Reed Bent-grass
LTG	<i>Carex tereticaulis</i>	Hollow Sedge
MTG	<i>Lachnagrostis filiformis</i> var. <i>filiformis</i>	Common Blown-grass
MTG	<i>Juncus amabilis</i>	Hollow Rush
MTG	<i>Poa labillardierei</i>	Common Tussock-grass
MTG	<i>Dichelachne crinita</i>	Long-hair Plume-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Cynodon dactylon</i>	Couch
SC	<i>Calystegia sepium</i>	Large Bindweed

EVC 641: Riparian Woodland – Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

30% cover

Logs:

20m / 0.1 ha

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	<i>Rosa rubiginosa</i>	Sweet Briar	high	high
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high
LH	<i>Plantago lanceolata</i>	Ribwort	high	low
LH	<i>Helminthotheca echinoides</i>	Ox-tongue	high	low
LH	<i>Rumex crispus</i>	Curled Dock	high	low
LH	<i>Aster subulatus</i>	Aster-weed	high	low
LH	<i>Rorippa palustris</i>	Marsh Yellow-cress	high	high
MH	<i>Leontodon taraxacoides</i> ssp. <i>taraxacoides</i>	Hairy Hawkbit	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
LTG	<i>Phalaris aquatica</i>	Toowoomba Canary-grass	high	high
LNG	<i>Holcus lanatus</i>	Yorkshire Fog	high	high
MTG	<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	Soft Brome	high	low
MTG	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	high	high
MNG	<i>Paspalum distichum</i>	Water Couch	high	high
MNG	<i>Paspalum distichum</i>	Water Couch	high	high
SC	<i>Galium aparine</i>	Cleavers	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 652: Lunette Woodland

Description:

An open, eucalypt woodland to 15 m tall with a grassy and herb-rich understorey. Occurs on generally fertile, relatively well-drained, clay-loam soils on source-bordering lunettes.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	80 cm	8 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
10%	<i>Eucalyptus camaldulensis</i>	River Red Gum
	<i>Eucalyptus melliodora</i>	Yellow Box

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	3	10%	MS
Small Shrub	1	1%	SS
Large Herb	3	5%	LH
Medium Herb	8	15%	MH
Small or Prostrate Herb	2	5%	SH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	12	45%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

LF Code	Species typical of at least part of EVC range	Common Name
T	<i>Acacia implexa</i>	Lightwood
MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Acacia paradoxa</i>	Hedge Wattle
SS	<i>Pimelea humilis</i>	Common Rice-flower
LH	<i>Wahlenbergia</i> spp.	Bluebell
MH	<i>Sida corrugata</i>	Variable Sida
MH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
MH	<i>Acaena echinata</i>	Sheep's Burr
MH	<i>Convolvulus erubescens</i> spp. agg.	Pink Bindweed
SH	<i>Dichondra repens</i>	Kidney-weed
LTG	<i>Austrostipa aristiglumis</i>	Plump Spear-grass
MTG	<i>Lomandra multiflora</i> ssp. <i>multiflora</i>	Many-flowered Mat-rush
MTG	<i>Themeda triandra</i>	Kangaroo Grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	Stiped Wallaby-grass
MNG	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass

EVC 652: Lunette Woodland – Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

10 % cover

Logs:

10 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	<i>Lycium ferocissimum</i>	African Box-thorn	low	high
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Plantago lanceolata</i>	Ribwort	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
LNG	<i>Holcus lanatus</i>	Yorkshire Fog	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MTG	<i>Romulea rosea</i>	Onion Grass	high	low
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low
MTG	<i>Briza maxima</i>	Large Quaking-grass	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 803: Plains Woodland

Description:

Grassy or sedgy woodland to 15 m tall (typically dominated by *Eucalyptus largiflorens* in the north-western part of its range) with large inter-tussock spaces potentially supporting a range of annual or geophytic herbs adapted to low summer rainfall, with low overall biomass. Mostly occurs on terrain of low relief in areas receiving <600 mm rainfall per annum. Fertile, sometimes seasonally waterlogged, mostly silty, loamy or clay topsoils, with heavy subsoils, derived largely from recent (ie Quaternary) fluvial or alluvial deposits.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	60cm	15/ha
<i>Allocasuarina luehmannii</i>	40cm	

Tree Canopy Cover:

%cover	Character Species	Common Name
15%	<i>Eucalyptus largiflorens</i>	Black Box
	<i>Allocasuarina luehmannii</i>	Buloke
	<i>Eucalyptus microcarpa</i>	Grey Box
	<i>Eucalyptus porosa</i>	Black Mallee-box

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	3	10%	MS
Small shrub	1	5%	SS
Prostrate shrub	2	10%	PS
Large Herb	2	1%	LH
Medium Herb	9	10%	MH
Small or Prostrate Herb	5	10%	SH
Large tufted graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	6	20%	MTG
Medium to Tiny Non-tufted Graminoid	2	1%	MNG
Scrambler or Climber	1	1%	SC
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C
Total understorey projective foliage cover		80%	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Pittosporum angustifolium</i>	Weeping Pittosporum
MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Acacia acinacea</i> s.l.	Gold-dust Wattle
SS	<i>Eutaxia microphylla</i> var. <i>microphylla</i>	Common Eutaxia
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
SS	<i>Sclerolaena diacantha</i>	Grey Copperburr
LH	<i>Senecio quadridentatus</i>	Cotton Fireweed
MH	<i>Einadia nutans</i> ssp. <i>nutans</i>	Nodding Saltbush
MH	<i>Calocephalus citreus</i>	Lemon Beauty-heads
MH	<i>Plantago gaudichaudii</i>	Narrow Plantain
MH	<i>Sida corrugata</i>	Variable Sida
SH	<i>Crassula sieberiana</i>	Sieber Crassula
SH	<i>Actinobole uliginosum</i>	Flannel Cudweed
SH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
SH	<i>Calotis hispidula</i>	Hairy Burr-daisy
LTG	<i>Austrostipa aristiglumis</i>	Plump Spear-grass
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MTG	<i>Dianella revoluta</i> s.l.	Common Wallaby-grass

EVC 803: Plains Woodland - Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

10 % cover

Logs:

10m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	<i>Lycium ferocissimum</i>	Boxthorn	high	high
LH	<i>Brassica tournefortii</i>	Mediterranean Turnip	high	high
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Opuntia</i> spp	Prickly Pear	high	high
MH	<i>Gazania linearis</i>	Gazania	high	high
MH	<i>Spergularia rubra</i> s.l.	Red Sand-spurrey	high	low
MH	<i>Silene apetala</i> var. <i>apetala</i>	Sand Catchfly	high	low
MH	<i>Silene longicaulis</i>	Portuguese Catchfly	high	low
SH	<i>Medicago minima</i>	Little Medic	high	low
MTG	<i>Schismus barbatus</i>	Arabian Grass	high	low
MTG	<i>Poa bulbosa</i>	<i>Bulbous Meadow-grass</i>	<i>high</i>	<i>high</i>
MTG	<i>Pentaschistis airoides</i> subsp. <i>airoides</i>	False Hair-grass	high	high
MTG	<i>Romulea rosea</i>	Onion Grass	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low
MNG	<i>Bromus</i> spp.	Brome	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 809: Floodplain Grassy Wetland

Description:

Wetland dominated by floating aquatic grasses (which persist to some extent as turf during drier periods), occurring in the most flood-prone riverine areas. Typically treeless, but sometimes with thickets of saplings or scattered more mature specimens of *Eucalyptus camaldulensis*. Occupies temporary shallow lakes in the most flood-prone riverine areas, also occurs as a narrow intermediate band around some floodway ponds.

Life forms:

Life form	#Spp	%Cover	LF code
Medium Herb	5	10%	MH
Small or Prostrate Herb	3	5%	SH
Large Tufted Graminoid	1	5%	LTG
Medium to Small Tufted Graminoid	3	5%	MTG
Medium to Tiny Non-tufted Graminoid	4	60%	MNG

LF Code	Species typical of at least part of EVC range	Common Name
MH	<i>Myriophyllum crispatum</i>	Upright Milfoil
MH	<i>Ludwigia peploides</i> ssp. <i>montevidensis</i>	Clove-strip
MH	<i>Nymphoides crenata</i>	Wavy Marshwort
MH	<i>Centipeda cunninghamii</i>	Common Sneezeweed
SH	<i>Azolla filiculoides</i>	Pacific Azolla
SH	<i>Persicaria prostrata</i>	Creeping Knotweed
LTG	<i>Juncus ingens</i>	Giant Rush
MTG	<i>Lachnagrostis filiformis</i>	Common Blown Grass
MTG	<i>Sporobolus mitchellii</i>	Brown-back Wallaby-grass
MNG	<i>Pseudoraphis spinescens</i>	Spiny Mud-grass
MNG	<i>Amphibromus fluitans</i>	River Swamp Wallaby-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Cynodon dactylon</i> var. <i>pulchellus</i>	Native Couch

Recruitment:

Episodic/Flood. Desirable period between disturbances is 5 years.

Organic Litter:

10% cover

Logs:

5 m/0.1 ha.(where trees are overhanging the wetland)

Weediness:

There are no consistent weeds in this EVC.

EVC 809: Floodplain Grassy Wetland - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 810: Floodway Pond Herbland

Description:

Low herbland to < 0.3 m tall with occasional emergent life forms, usually with a high content of ephemeral species. Floors of ponds associated with floodway systems. Typically heavy deeply cracking clay soils. Characteristically smaller wetlands with a more regular flooding and drying cycle in comparison to sites supporting Lake Bed Herbland.

Life forms:

Life form	#Spp	%Cover	LF code
Large Herb	1	1%	LH
Medium Herb	5	20%	MH
Small or Prostrate Herb*	4	15%	SH
Medium to Small Tufted Graminoid	2	10%	MTG
Medium to Tiny Non-tufted Graminoid	3	20%	MNG

* Largely seasonal life form

Total understorey projective foliage cover **65%**

LF Code	Species typical of at least part of EVC range	Common Name
MH	<i>Persicaria prostrata</i>	Creeping Knotweed
MH	<i>Centipeda cunninghamii</i>	Common Sneezeweed
MH	<i>Alternanthera denticulata</i> s.l.	Lesser Joyweed
SH	<i>Polygonum plebeium</i>	Small Knotweed
SH	<i>Dysphania glomulifera</i> ssp. <i>glomulifera</i>	Globular Pigweed
SH	<i>Lemna disperma</i>	Common Duckweed
MTG	<i>Lachnagrostis filiformis</i>	Common Blown-grass
MNG	<i>Pseudoraphis spinescens</i>	Spiny Mud Grass
MNG	<i>Carex gaudichaudiana</i>	Fen Sedge
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge

Recruitment:

Episodic/Flood. Desirable period between disturbances is 5 years.

Organic Litter:

5% cover

Logs:

5 m/0.1 ha.(where trees are overhanging the wetland)

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MH	<i>Callitriche stagnalis</i>	Water Starwort	high	high

EVC 810: Floodway Pond Herbland - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 813: Intermittent Swampy Woodland

Description:

Eucalypt woodland to 15 m tall with a variously shrubby and rhizomatous sedgy - turf grass understorey, at best development dominated by flood stimulated species in association with flora tolerant of inundation. Flooding is unreliable but extensive when it happens. Occupies low elevation areas on river terraces (mostly at the rear of point-bar deposits or adjacent to major floodways) and lacustrine verges (where sometimes localised to narrow transitional bands). Soils often have a shallow sand layer over heavy and frequently slightly brackish soils.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus camaldulensis</i>	70 cm	15 / ha
<i>Eucalyptus largiflorens</i>	50 cm	

Tree Canopy Cover:

%cover	Character Species	Common Name
20%	<i>Eucalyptus camaldulensis</i>	River Red-gum
	<i>Eucalyptus largiflorens</i>	Black Box

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	1	5%	MS
Small Shrub	1	5%	SS
Large Herb	2	5%	LH
Medium Herb	5	10%	MH
Small or Prostrate Herb	1	5%	SH
Medium to Small Tufted Graminoid	3	30%	MTG
Medium to Tiny Non-tufted Graminoid	2	10%	MNG
Total understorey projective foliage cover		70%	

LF Code	Species typical of at least part of EVC range	Common Name
T	<i>Acacia stenophylla</i>	River Coobah
MS	<i>Muehlenbeckia florulenta</i>	Tangled Lignum
SS	<i>Cressa cretica</i>	Rosinweed
LH	<i>Stemodia florulenta</i>	Blue Rod
LH	<i>Wahlenbergia fluminalis</i>	River Bluebell
MH	<i>Haloragis aspera</i>	Rough Raspwort
MH	<i>Centipeda cunninghamii</i>	Common Sneezeweed
MH	<i>Calocephalus sonderi</i>	Pale Beauty-heads
SH	<i>Epiltes australis</i>	Spreading Nut-heads
MTG	<i>Sporobolus mitchellii</i>	Rat-tail Couch
MTG	<i>Cyperus gymnocaulos</i>	Spring Flat-sedge
MTG	<i>Lachnagrostis filiformis</i>	Common Blown-grass
MNG	<i>Cynodon dactylon</i> var. <i>pulchellus</i>	Native Couch

Recruitment:

Continuous

Organic Litter:

20 % cover

Logs:

20 m/0.1 ha.

Weediness:

There are no consistent weeds in this EVC.

EVC 813: Intermittent Swampy Woodland - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 814: Riverine Swamp Forest

Description:

Open eucalypt forest to 25 m tall with understorey dominated by obligate wetland species (or opportunistic annuals during sustained dry periods) and can range from closed sedgeland or herbland to grassy-herbaceous or extremely sparse and with cover primarily leaf-litter, black water or exposed alluvium. Occupies low-lying areas subject to reasonably regular flooding, typically flood-prone lower river terraces and low-lying areas adjacent to floodways through or within riverine forest.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	90 cm	20 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
30%	<i>Eucalyptus camaldulensis</i>	River Red-gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Large Herb	2	5%	LH
Medium Herb	6	15%	MH
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	1	5%	MTG
Medium to Tiny Non-tufted Graminoid	2	30%	MNG
Total understorey projective foliage cover		65%	

LF Code	Species typical of at least part of EVC range	Common Name
LH	<i>Wahlenbergia fluminalis</i>	River Bluebell
LH	<i>Senecio quadridentatus</i>	Cotton Fireweed
MH	<i>Alternanthera denticulata</i> s.l.	Lesser Joyweed
MH	<i>Ranunculus inundatus</i>	River Buttercup
MH	<i>Ranunculus pumilio</i> var. <i>pumilio</i>	Fan-leaf Buttercup
MH	<i>Centipeda cunninghamii</i>	Common Sneezeweed
LNG	<i>Phragmites australis</i>	Common Reed
MTG	<i>Lachnagrostis filiformis</i>	Common Blown Grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Cynodon dactylon</i> var. <i>pulchellus</i>	Native Couch

Recruitment:

Continuous

Organic Litter:

20 % cover

Logs:

20 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MH	<i>Phyla canescens</i>	Fog-fruit	high	high

EVC 814: Riverine Swamp Forest - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 815: Riverine Swampy Woodland

Description:

Eucalypt woodland to 15 m tall above a grassy to sedgy – herbaceous ground layer, with species indicative of periodic water-logging. Occupies areas subject to shallow inundation only from higher-level flooding on riverine flood plain. Soils are typically heavy, cracking mottled grey-brown clays/clay-loams and water-retentive, often with a gilgai profile which can be wet during winter.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus camaldulensis</i>	70 cm	15 / ha
<i>Eucalyptus largiflorens</i>	50 cm	

Tree Canopy Cover:

%cover	Character Species	Common Name
20%	<i>Eucalyptus camaldulensis</i>	River Red-gum
	<i>Eucalyptus largiflorens</i>	Black Box

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Large Herb	2	5%	LH
Medium Herb	3	10%	MH
Small or Prostrate Herb	1	5%	SH
Large Tufted Graminoid	3	10%	LTG
Medium to Small Tufted Graminoid	2	10%	MTG
Medium to Tiny Non-tufted Graminoid	3	20%	MNG
Total understorey projective foliage cover		65%	

LF Code	Species typical of at least part of EVC range	Common Name
LH	<i>Wahlenbergia fluminalis</i>	River Bluebell
LH	<i>Brachyscome basaltica</i> var. <i>gracilis</i>	Woodland Swamp-daisy
MH	<i>Marsilea drummondii</i>	Common Nardoo
SH	<i>Lobelia concolor</i>	Poison Pratia
LTG	<i>Amphibromus nervosus</i>	Common Swamp Wallaby-grass
LTG	<i>Carex tereticaulis</i>	Rush Sedge
MTG	<i>Austrodanthonia duttoniana</i>	Brown-back Wallaby-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Eleocharis pusilla</i>	Small Spike-sedge

Recruitment:

Episodic/Flood. Desirable period between disturbances is 5 years.

Organic Litter:

10% cover

Logs:

10 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
LNG	<i>Avena fatua</i>	Wild Oat	high	low
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MTG	<i>Critetion hystrix</i>	Mediterranean Barley-grass	high	low
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low

EVC 815: Riverine Swampy Woodland - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 816: Sedgy Riverine Forest

Description:

Eucalypt forest to 25 m tall with understorey dominated by larger sedges. Understorey composition indicative of at least occasional shallow flooding and a tolerance of gaps between floods of several years. Typically on heavy soils which can become wet in winter. Sedgy Riverine Forest has some floristic affinities to Red Gum Swamp. It is considered to occupy areas infrequently flooded and in which flood duration may be short, for example, higher ground surrounding the box ridges or occurring along the river levee in a position remote from the channels from which the forest first floods. These areas are therefore the last to flood and the first from which floods quickly recede. Soils are typically heavy clays. The major understorey species *Carex tereticaulis* is intolerant of total immersion (at least in turbid water).

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	80 cm	20 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
30%	<i>Eucalyptus camaldulensis</i>	River Red-gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	1	10%	T
Medium Herb	2	5%	MH
Small or Prostrate Herb	2	5%	SH
Large Tufted Graminoid	1	50%	LTG
Medium to Small Tufted Graminoid	2	10%	MTG
Medium to Tiny Non-tufted Graminoid	2	10%	MNG
Total understorey projective foliage cover		90%	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Exocarpos strictus</i>	Pale-fruit Ballart
LH	<i>Wahlenbergia fluminalis</i>	River Bluebell
LH	<i>Senecio quadridentatus</i>	Cotton Fireweed
LH	<i>Brachyscome basaltica</i> var. <i>gracilis</i>	Woodland Swamp-daisy
MH	<i>Marsilea drummondii</i>	Common Nardoo
SH	<i>Lobelia concolor</i>	Poison Pratia
SH	<i>Chamaesyce drummondii</i>	Flat Spurge
LTG	<i>Carex tereticaulis</i>	Rush Sedge
MTG	<i>Setaria jubiflora</i>	Warrego Summer-grass
MTG	<i>Lachnagrostis filiformis</i>	Common Blown Grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Eleocharis pusilla</i>	Small Spike-sedge

Recruitment:

Episodic/Flood. Desirable period between disturbances is 10 years.

Organic Litter:

10 % cover

Logs:

20 m/0.1 ha.

EVC 816: Sedgy Riverine Forest - Murray Fans bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Lactuca serriola</i>	Prickly Lettuce	high	low
LH	<i>Aster subulatus</i>	Aster Weed	high	low
LH	<i>Helminthotheca echioides</i>	Prickly Ox-tongue	high	low
LH	<i>Cirsium vulgare</i>	Spear Thistle	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 818: Shrubby Riverine Woodland

Description:

Eucalypt woodland to open forest to 15 m tall of less flood-prone (riverine) watercourse fringes, principally on levees and higher sections of point-bar deposits. The understorey includes a range of species shared with drier floodplain habitats with a sparse shrub component, ground-layer patchily dominated by various life-forms. A range of large dicot herbs (mostly herbaceous perennial, several with a growth-form approaching that of small shrub) are often conspicuous.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus largiflorens</i>	50 cm	5/ha
<i>Eucalyptus camaldulensis</i>	80 cm	

Tree Canopy Cover:

%cover	Character Species	Common Name
10%	<i>Eucalyptus largiflorens</i>	Black Box
	<i>Eucalyptus camaldulensis</i>	River Red-gum

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	2	10%	MS
Small Shrub	2	5%	SS
Large Herb	4	10%	LH
Medium Herb	5	10%	MH
Small or Prostrate Herb*	2	1%	SH
Medium to Small Tufted Graminoid	2	10%	MTG

* Largely seasonal life form

Total understorey projective foliage cover **50%**

LF Code	Species typical of at least part of EVC range	Common Name
T	<i>Acacia stenophylla</i>	River Coobah
MS	<i>Muehlenbeckia florulenta</i>	Tangled Lignum
MS	<i>Chenopodium nitriaceum</i>	Nitre Goosefoot
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
PS	<i>Scleroclamys brachyptera</i>	Short-wing Saltbush
LH	k <i>Senecio cunninghamii</i> var. <i>cunninghamii</i>	Branching Groundsel
LH	<i>Senecio pinnatifolius</i>	Mallee Groundsel
LH	<i>Xerochrysum bracteatum</i>	Golden Everlasting
MH	<i>Calotis cuneifolia</i>	Blue Burr-daisy
MH	k <i>Lotus australis</i>	Austral Trefoil
MH	r <i>Picris squarrosa</i>	Squat Picris
MH	<i>Teucrium racemosum</i> s.l.	Grey Germander
MTG	<i>Setaria jubiflora</i>	Warrego Summer-grass

Recruitment:

Continuous

Organic Litter:

10% cover

Logs:

10m/0.1 ha.

EVC 818: Shrubby Riverine Woodland - Murray Fans bioregion

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
T	<i>Olea europaea</i> subsp. <i>europaea</i>	Olive	high	high
MS	<i>Lycium ferocissimum</i>	Boxthorn	high	high
LH	<i>Sisymbrium erysimoides</i>	Smooth Mustard	high	high
LH	<i>Critesion</i> spp.	Barley-grass	high	low
LH	<i>Gazania linearis</i>	Gazania	high	high
LH	<i>Opuntia</i> spp.	Prickly Pear	low	high
LH	<i>Sisymbrium irio</i>	London Mustard	high	high
LH	<i>Psilocaulon granulicaule</i>	Noon-flower	high	high
MH	<i>Limonium sinuatum</i>	Notch-leaf Sea-lavender	high	high
MH	<i>Limonium lobatum</i>	Winged Sea-lavender	high	high
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	low
MH	<i>Mesembryanthemum nodiflora</i>	Ice-plant	high	high
MH	<i>Carrichtera annua</i>	Ward's Weed	high	high
MH	<i>Marrubium vulgare</i>	Horehound	high	high
MH	<i>Carpobrotus aequilaterus</i>	Angled Pigface	low	high
MH	<i>Silene apetala</i> var. <i>apetala</i>	Sand Catchfly	high	low
MH	<i>Medicago</i> spp.	Medic	high	low
MH	<i>Oxalis pes-caprae</i>	Soursob	high	high
MH	<i>Silene gallica</i>	French Catchfly	high	low
MH	<i>Silene nocturna</i>	Mediterranean Catchfly	high	low
SH	<i>Mesembryanthemum crystallinum</i>	Common Ice-plant	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	high
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	low
MTG	<i>Asphodelus fistulosus</i>	Onion Weed	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low
MNG	<i>Bromus</i> spp.	Brome	high	high
MNG	<i>Schismus barbatus</i>	Arabian Grass	high	low
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 819: Spike-sedge Wetland

Description:

Low sedgy vegetation of species-poor seasonal or intermittent wetlands, dominated by spike-sedges. Typically treeless, but sometimes with thickets of saplings or scattered more mature specimens of *Eucalyptus camaldulensis*. Mostly confined to a narrow ring around the upper margins of floodway ponds. Soils are typically heavy clays (e.g. mottled yellow-grey clay, grey loamy clay), occasionally silty near the surface. In some riverine sites, annual inundation is not reliable and the rhizomic rootstocks of *Eleocharis acuta* appear capable of surviving at least occasional periods of longer dormancy.

Life Forms:

Life form	#Spp	%Cover	LF code
Large Herb	1	5%	LH
Medium Herb	6	15%	MH
Small or Prostrate Herb	4	5%	SH
Medium to Small Tufted Graminoid	2	10%	MTG
Medium to Tiny Non-tufted Graminoid	2	50%	MNG
Total understorey projective foliage cover		75%	

LF Code	Species typical of at least part of EVC range	Common Name
LH	<i>Senecio quadridentatus</i>	Cottony Fireweed
MH	<i>Myriophyllum crispatum</i>	Upright Milfoil
MH	<i>Marsilea drummondii</i>	Common Nardoo
MH	<i>Ludwigia peploides</i> ssp. <i>montevidensis</i>	Clove-strip
MH	<i>Centipeda cunninghamii</i>	Common Sneezeweed
SH	<i>Lobelia concolor</i>	Poison Pratia
SH	<i>Persicaria prostrata</i>	Prostrate Knotweed
SH	<i>Callitriche sonderi</i>	Matted Water-starwort
MTG	<i>Triglochin procerum</i> s.l.	Water-ribbons
MTG	<i>Lachnagrostis filiformis</i>	Common Blown Grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Eleocharis pusilla</i>	Small Spike-sedge

Recruitment:

Episodic/Flood – desirable period is every five years

Organic Litter:

20% Cover

Logs:

5 m/0.1 ha.(where trees are overhanging the wetland)

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Aster subulatus</i>	Aster-weed	high	low
MNG	<i>Paspalum distichum</i>	Water Couch	high	high

EVC 819: Spike-sedge Wetland - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 821: Tall Marsh

Description:

Wetland dominated by tall emergent graminoids (rushes, sedges, reeds), typically in thick species-poor swards. Competitive exclusion in core wetland habitat - of optimum growing conditions for species tolerant of sustained shallow inundation. Occupies wetlands usually associated with anabranch creeks. Soils are almost permanently moist. Dominant species are tolerant of relatively deep and sustained inundation, but not total immersion for any sustained period.

Life Forms:

Life form	#Spp	%Cover	LF code
Medium Herb	6	20%	MH
Small or Prostrate Herb	3	10%	SH
Large Tufted Graminoid	1	10%	LTG
Large Non-tufted Graminoid	3	40%	LNG
Medium to Tiny Non-tufted Graminoid	2	10%	MNG
Total understorey projective foliage cover		90%	

LF Code	Species typical of at least part of EVC range	Common Name
MH	<i>Myriophyllum papillosum</i>	Robust Water-milfoil
MH	<i>Persicaria decipiens</i>	Slender Knotweed
MH	<i>Lythrum hyssopifolia</i>	Small Loose-strife
MH	<i>Potamogeton tricaratus</i> s.l.	Floating Pondweed
SH	<i>Lemna disperma</i>	Common Duckweed
SH	<i>Azolla filiculoides</i>	Pacific Azolla
LTG	<i>Juncus ingens</i>	Giant Rush
LNG	<i>Schoenoplectus tabernaemontani</i>	River Club-sedge
LNG	<i>Phragmites australis</i>	Common Reed
LNG	<i>Typha orientalis</i>	Broad-leaf Cumbungi
LNG	<i>Typha domingensis</i>	Cumbungi
MTG	<i>Triglochin procerum</i> s.l.	Water Ribbons
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Pseudoraphis spinescens</i>	Spiny Mud-grass

Recruitment:

Episodic/Flood: desirable period of disturbance is every year

Organic Litter:

10% cover

Logs:

5 m/0.1 ha.(where trees are overhanging the wetland)

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
T	<i>Salix cinerea</i>	Grey Sallow	high	high
MH	<i>Rorippa palustris</i>	Yellow Marsh-cress	high	high
MTG	<i>Polyopogon monspeliensis</i>	Annual Beard-grass	high	low
MNG	<i>Paspalum distichum</i>	Water Couch	high	high

EVC 821: Tall Marsh - Murray Fans bioregion

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 823: Lignum Swampy Woodland

Description:

Understorey dominated by Lignum, typically of robust character and relatively dense (at least in patches), in association with a low Eucalypt and/or Acacia woodland to 15 m tall. The ground layer includes a component of obligate wetland flora that is able to persist even if dormant over dry periods.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus largiflorens</i>	50cm	15/ha
<i>Eucalyptus camaldulensis</i>	70cm	

Tree Canopy Cover:

% cover	Character Species	Common Name
20%	<i>Eucalyptus largiflorens</i>	Black Box
	<i>Eucalyptus camaldulensis</i>	River Red Gum
	<i>Acacia stenophylla</i>	River Coobah

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	2	30%	MS
Small Shrub	1	5%	SS
Large Herb	2	1%	LH
Medium Herb*	8	10%	MH
Small or Prostrate Herb*	5	10%	SH
Medium to Small Tufted Graminoid*	4	10%	MTG
Large Non-tufted Graminoid	1	5%	LNG
Medium to Tiny Non-tufted Graminoid*	3	15%	MNG
Soil Crust	na	10%	S/C

* Largely seasonal life form

Total understorey projective foliage cover 75%

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Muehlenbeckia florulenta</i>	Tangled Lignum
MS	<i>Chenopodium nitriaceum</i>	Nitre Goosefoot
SS	<i>Atriplex lindleyi</i>	Flat-top Saltbush
SS	<i>Sclerolaena muricata</i>	Five-spined Bassia
LH	<i>Rumex</i> spp.	Dock
MH	<i>Marsilea drummondii</i>	Common Nardoo
MH	<i>Brachyscome ciliaris</i>	Variable Daisy
MH	<i>Euchiton sphaericus</i>	Annual Cudweed
MH	<i>Ranunculus</i> spp.	Buttercup
LNG	<i>Eragrostis australasica</i>	Cane Grass
MTG	<i>Setaria jubiflora</i>	Warrego Summer-grass
MTG	<i>Austrodanthonia duttoniana</i>	Brown-back Wallaby-grass
MTG	<i>Sporobolus mitchellii</i>	Short Rat-tail Grass
MTG	<i>Eragrostis setifolia</i>	Bristly Love-grass
MNG	<i>Eragrostis infecunda</i>	Barren Cane grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Eleocharis pusilla</i>	Small Spike-sedge
SC	<i>Asperula gemella</i>	Twin-leaf Bedstraw

EVC 823: Lignum Swampy Woodland - Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

10 % cover

Logs:

10m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
SH	<i>Phyla canescens</i>	Lippia	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 824: Woorinen Mallee

Description:

Widespread mallee woodland to 12 m tall, associated with the east-west orientated calcareous dunefields of the Woorinen Formation with a low, open chenopod dominated shrub understorey. A diverse array of sub-shrubs, herbs and grasses are also present. Typically occurs on fine textured red-brown sandy loam and clay loam soils.

Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	15 cm	30/ha

Tree Canopy Cover:

% cover	Character Species	Common Name
25%	<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i>	Oil Mallee
	<i>Eucalyptus dumosa</i>	Dumosa Mallee
	<i>Eucalyptus gracilis</i>	Yorrell
	<i>Eucalyptus calycogona</i>	Red Mallee
	<i>Eucalyptus socialis</i>	Grey Mallee

Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	6	10%	MS
Small Shrub	6	20%	SS
Medium Herb*	6	10%	MH
Small or Prostrate Herb	7	10%	SH
Medium to Small Tufted Graminoid	1	1%	MTG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	15%	S/C

* Largely seasonal life form

Total understorey projective foliage cover 60%

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Santalum acuminatum</i>	Sweet Quandong
MS	<i>Exocarpos aphyllus</i>	Leafless Ballart
MS	<i>Acacia oswaldii</i>	Umbrella Wattle
MS	<i>Eremophila glabra</i>	Common Emu-bush
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
SS	<i>Chenopodium curvispicatum</i>	Cottony Goosefoot
SS	<i>Olearia muelleri</i>	Mueller Daisy-bush
SS	<i>Maireana pentatropis</i>	Erect Bluebush
MH	<i>Zygophyllum apiculatum</i>	Pointed Twin-leaf
MH	<i>Stenopetalum lineare</i>	Narrow Thread-petal
MH	<i>Eriochiton sclerolaenoides</i>	Woolly-fruit Bluebush
MH	<i>Brachyscome ciliaris</i>	Variable Daisy
SH	<i>Calandrinia eremaea</i>	Small Purslane
SH	<i>Ptilotus seminudus</i>	Rabbit Tails
SH	<i>Rhodanthe pygmaea</i>	Pygmy Sunray
SH	<i>Isoetopsis graminifolia</i>	Grass Cushion
MTG	<i>Austrostipa elegantissima</i>	Feather Spear-grass

EVC 824: Woorinen Mallee – Murray Fans bioregion

Recruitment:

Continuous (excluding overstorey)

Organic Litter:

20% cover

Logs:

20m/0.1 ha. (note: large log class does not apply)

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
T	<i>Olea europaea</i> subsp. <i>europaea</i>	Olive	high	high
MS	<i>Lycium ferocissimum</i>	Boxthorn	high	high
LH	<i>Opuntia</i> spp.	Prickly Pear	high	high
LH	<i>Croton</i> spp.	Barley-grass	high	low
LH	<i>Gazania linearis</i>	Gazania	high	high
LH	<i>Psilocaulon granulicaule</i>	Noon-flower	high	high
LH	<i>Sisymbrium erysimoides</i>	Smooth Mustard	high	high
LH	<i>Sisymbrium irio</i>	London Mustard	high	high
MH	<i>Brassica tournefortii</i>	Mediterranean Turnip	high	high
MH	<i>Carpobrotus aequilaterus</i>	Angled Pigface	high	high
MH	<i>Medicago</i> spp.	Medic	high	low
MH	<i>Marrubium vulgare</i>	Horehound	high	high
MH	<i>Oxalis pes-caprae</i>	Soursob	high	high
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	low
MH	<i>Mesembryanthemum nodiflora</i>	Ice-plant	high	high
MH	<i>Carrichtera annua</i>	Ward's Weed	high	high
MH	<i>Silene apetala</i> var. <i>apetala</i>	Sand Catchfly	high	low
MH	<i>Silene gallica</i>	French Catchfly	high	low
MH	<i>Silene nocturna</i>	Mediterranean Catchfly	high	low
MH	<i>Limonium sinuatum</i>	Notch-leaf Sea-lavender	high	high
MH	<i>Limonium lobatum</i>	Winged Sea-lavender	high	high
SH	<i>Mesembryanthemum crystallinum</i>	Common Ice-plant	high	high
MNG	<i>Schismus barbatus</i>	Arabian Grass	high	low
MTG	<i>Asphodelus fistulosus</i>	Onion Weed	high	high
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	low
MNG	<i>Bromus</i> spp.	Brome	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 826: Plains Savannah

Description:

A structurally diverse vegetation unit which includes 'grassy openings' of a few to many hundreds of hectares, with a variable tree density ranging from a very sparse savannah to woodland. The relative absence of eucalypts is particularly characteristic, with *Allocasuarina luehmannii* and perhaps *Callitris gracilis* subsp. *murrayensis* to 10 m tall being the dominant trees. Widespread on the northern plains.

+ woodland only components (ignore when assessing grassland areas and standardise final score as appropriate)

Large trees⁺:

Species	DBH(cm)	#/ha
<i>Allocasuarina luehmannii</i>	40 cm	5/ha
<i>Callitris gracilis</i> ssp. <i>murrayensis</i>		

Tree Canopy Cover⁺:

% cover	Character Species	Common Name
10%	<i>Allocasuarina luehmannii</i>	Buloke
	<i>Callitris gracilis</i> ssp. <i>murrayensis</i>	Slender Cypress-pine

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree ⁺		5%	IT
Small Shrub	2	5%	SS
Large Herb	3	5%	LH
Medium Herb*	6	20%	MH
Small or Prostrate Herb*	3	10%	SH
Large Tufted Graminoid	1	5%	LTG
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	5	35%	MTG
Medium to Tiny Non-tufted Graminoid*	2	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	25%	S/C

* Largely seasonal life form

LF Code	Species typical of at least part of EVC range	Common Name
T	<i>Acacia pendula</i>	Boree
MS	<i>Acacia oswaldii</i>	Umbrella Wattle
SS	<i>Sclerolaena napiformis</i>	Turnip Copperburr
SS	<i>Sclerolaena diacantha</i>	Grey Copperburr
SS	<i>Maireana decalvans</i>	Black Cotton-bush
SS	<i>Pimelea curviflora</i> s.s.	Curved Rice-flower
LH	<i>Ptilotus exaltatus</i>	Mulla Mulla
LH	<i>Eryngium ovinum</i>	Blue Devil
LH	<i>Calocephalus citreus</i>	Lemon Beauty-heads
LH	<i>Arthropodium fimbriatum</i>	Nodding Chocolate-lily
MH	<i>Calotis scabiosifolia</i>	Rough Burr-daisy
MH	<i>Goodenia pinnatifida</i>	Cut-leaf Goodenia
MH	<i>Sida corrugata</i>	Variable Sida
MH	<i>Ptilotus macrocephalus</i>	Feather Heads
SH	<i>Maireana pentagona</i>	Hairy Bluebush
SH	<i>Chamaesyce drummondii</i>	Flat Spurge
SH	<i>Pogonolepis muelleriana</i>	Stiff Cup-flower
SH	<i>Convolvulus erubescens</i> spp. agg.	Pink Bindweed
LTG	<i>Austrostipa blackii</i>	Crested Spear-grass
LTG	<i>Austrostipa gibbosa</i>	Spurred Spear-grass
LTG	<i>Austrostipa aristiglumis</i>	Plump Spear-grass
MTG	<i>Austrostipa scabra</i>	Rough Spear-grass
MTG	<i>Austrostipa nodosa</i>	Knotty Spear-grass
MTG	<i>Whalleya proluta</i>	Rigid Panic
MTG	<i>Austrodanthonia duttoniana</i>	Brown-back Wallaby-grass

EVC 826: Plains Savannah – Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

5% cover

Logs⁺:

5 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MS	<i>Lycium ferocissimum</i>	Boxthorn	high	high
LH	<i>Helminthotheca echioides</i>	Ox-tongue	high	low
LH	<i>Lepidium africanum</i>	Common Peppergrass	high	low
LH	<i>Salvia verbenaca</i>	Wild Sage	high	high
LH	<i>Echium plantagineum</i>	Patterson's curse	high	high
LH	<i>Sisymbrium irio</i>	London Rocket	high	high
LH	<i>Marrubium vulgare</i>	Horehound	high	high
LNG	<i>Avena fatua</i>	Wild Oat	high	high
MH	<i>Limonium sinuatum</i>	Notch-leaf Sea-lavender	high	high
MH	<i>Arctotheca calendula</i>	Cape Weed	high	high
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MH	<i>Oxalis pes-caprae</i>	Sour sob	high	high
MH	<i>Plantago coronopus</i>	Buck's-horn Plantain	high	high
MH	<i>Spergularia rubra</i> s.l.	Red Sand-spurrey	high	low
MH	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	high	high
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	high
MH	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	high	high
MH	<i>Trifolium striatum</i>	Knotted Clover	high	low
MH	<i>Trifolium subterraneum</i>	Subterranean Clover	high	low
MH	<i>Hedypnois cretica</i>	Cretan Hedypnois	high	high
MNG	<i>Aira cupaniana</i>	Quicksilver Grass	high	low
MNG	<i>Avena barbata</i>	Bearded Oat	high	high
MNG	<i>Brachypodium distachyon</i>	False Brome	high	high
MNG	<i>Juncus capitatus</i>	Capitate Rush	high	high
MNG	<i>Vulpia muralis</i>	Wall Fescue	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	high
MTG	<i>Bromus diandrus</i>	Great Brome	high	high
MTG	<i>Critiesion hystrix</i>	Mediterranean Barley-grass	high	high
MTG	<i>Critiesion murinum</i>	Barley-grass	high	high
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	high
MTG	<i>Pentstemonis airoides</i> ssp. <i>airoides</i>	False Hair-grass	high	low
MTG	<i>Poa bulbosa</i>	Bulbous Meadow-grass	high	high
MTG	<i>Romulea minutiflora</i>	Small-flower Onion-grass	high	high
MTG	<i>Romulea rosea</i>	Onion Grass	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	high
SH	<i>Medicago minima</i>	Little Medic	high	high
SH	<i>Medicago polymorpha</i>	Burr Medic	high	high
SH	<i>Trifolium glomeratum</i>	Cluster Clover	high	low

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 829: Chenopod Grassland

Description:

Open to sparse shrubland with a more or less continuous tussock grass sward found on heavy somewhat sodic clay plains fringing the active floodplains of major watercourses such as the Loddon and Avoca Rivers.

Life Forms:

Life form	#Spp	%Cover	LF code
Medium Shrub	1	10%	MS
Small Shrub	6	30%	SS
Large Herb	1	1%	LH
Medium Herbs*	5	15%	MH
Small or Prostrate Herbs*	4	5%	SH
Medium to Small Tufted Graminoid	3	20%	MTG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	20%	S/C

* Largely seasonal life form

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Lycium australe</i>	Australian Box-thorn
MS	<i>Nitraria billardierei</i>	Nitre-bush
SS	<i>Sclerolaena diacantha</i>	Grey Copperburr
SS	<i>Maireana aphylla</i>	Leafless Bluebush
SS	<i>Minuria cunninghamii</i>	Bush Minuria
SS	<i>Lawrencia squamata</i>	Thorny Lawrencia
PS	<i>Sclerochlamys brachyptera</i>	Short-wing Saltbush
PS	<i>Atriplex semibaccata</i>	Berry Saltbush
LH	<i>Podolepis canescens</i>	Grey Podolepis
MH	<i>Rhodanthe stuartiana</i>	Clay Sunray
MH	<i>Teucrium racemosum</i> s.s.	Grey Germander
MH	<i>Maireana excavata</i>	Bottle Bluebush
MH	<i>Sida corrugata</i>	Variable Sida
SH	<i>Hyalosperma glutinosum</i> ssp. <i>glutinosum</i>	Golden Sunray
SH	<i>Hyalosperma semisterile</i>	Orange Sunray
SH	<i>Rhodanthe pygmaea</i>	Pygmy Sunray
SH	<i>Pogonolepis muelleriana</i>	Stiff Cup-flower
LTG	<i>Austrostipa aristiglumis</i>	Plump Spear-grass
MTG	<i>Austrostipa</i> spp.	Spear-grass
MTG	<i>Whalleya proluta</i>	Rigid Panic
MTG	<i>Enteropogon acicularis</i>	Spider Grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass

EVC 829: Chenopod Grassland - Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

5% cover

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Carthamus lanatus</i>	Saffron Thistle	high	high
MH	<i>Limonium lobatum</i>	Winged Sea-lavender	high	high
MH	<i>Hedypnois cretica</i>	Cretan Hedypnois	high	high
MH	<i>Arctotheca calendula</i>	Cape Weed	high	high
MH	<i>Romulea rosea</i>	Onion Grass	high	high
SH	<i>Moraea setifolia</i>	Thread Iris	high	high
SH	<i>Medicago</i> spp.	Medic	high	high
MTG	<i>Critesion murinum</i> subsp. <i>leporinum</i>	Wall Barley-grass	high	high
MNG	<i>Bromus madritensis</i>	Madrid Brome	high	high
MNG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	high

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EVC/Bioregion Benchmark for Vegetation Quality Assessment

Murray Fans bioregion

EVC 882: Shallow Sands Woodland

Description:

Woodland or open-forest to 15 m tall, with a sparse shrub layer of heathy, ericoid shrubs and a species-rich ground cover dominated by grasses and annual herbs. Typically it occurs between the heavier soils of the plains and the deep-sand aeolian dunefields which overlay these plains, but also occurs on broader areas of plains covered by shallow fluvial, outwash or aeolian sands overlaying drainage-impeding clays.

Large trees:

Species	DBH(cm)	# / ha
<i>Eucalyptus</i> spp.	70 cm	15 / ha
<i>Allocasuarina luehmannii</i>	40 cm	
<i>Callitris glaucophylla</i>	40 cm	

Tree Canopy Cover:

%cover	Character Species	Common Name
15%	<i>Eucalyptus melliodora</i>	Yellow Box
	<i>Allocasuarina luehmannii</i>	Buloke
	<i>Callitris glaucophylla</i>	White Cypress-pine

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	4	15%	MS
Small Shrub	3	10%	SS
Prostrate Shrub	1	5%	PS
Medium Herb	10	20%	MH
Small or Prostrate Herb	2	5%	SH
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	13	30%	MTG
Medium to Tiny Non-tufted Graminoid	3	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

LF Code

Species typical of at least part of EVC range

Common Name

T	<i>Exocarpos cupressiformis</i>	Cherry Ballart
MS	<i>Acacia montana</i>	Mallee Wattle
MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Acacia verniciflua</i>	Varnish Wattle
MS	<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria
SS	<i>Pimelea curviflora</i> s.s.	Curved Rice-flower
SS	<i>Eutaxia microphylla</i>	Common Eutaxia
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
PS	<i>Astroloma humifusum</i>	Cranberry Heath
MH	<i>Wahlenbergia luteola</i>	Yellowish Bluebell
MH	<i>Acaena echinata</i>	Sheep's Burr
SH	<i>Daucus glochidiatus</i>	Australian Carrot
SH	<i>Drosera whittakeri</i> ssp. <i>aberrans</i>	Scented Sundew
LTG	<i>Dichelachne crinita</i>	Long-hair Plume-grass
MTG	<i>Austrodanthonia geniculata</i>	Kneed Wallaby-grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Schoenus apogon</i>	Common Bog-sedge
MTG	<i>Lomandra multiflora</i> ssp. <i>multiflora</i>	Many-flowered Mat-rush
TTG	<i>Centrolepis strigosa</i> ssp. <i>strigosa</i>	Hairy Centrolepis
SC	<i>Thysanotus patersonii</i>	Twining Fringe-lily

EVC 882: Shallow Sands Woodland – Murray Fans bioregion

Recruitment:

Continuous

Organic Litter:

20 % cover

Logs:

15 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Centaurium tenuiflorum</i>	Slender Centaury	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	high	low
MH	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	high	low
MH	<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	high	low
MH	<i>Petrorhagia velutina</i>	Velvety Pink	high	low
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low
MTG	<i>Briza maxima</i>	Large Quaking-grass	high	low
MTG	<i>Romulea rosea</i>	Onion Grass	high	low
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MNG	<i>Aira elegantissima</i>	Delicate Hair-grass	high	low
MNG	<i>Vulpia myuros</i> f. <i>myuros</i>	Rat's-tail Fescue	high	low
MNG	<i>Juncus capitatus</i>	Capitate Rush	high	low
MNG	<i>Bromus rubens</i>	Red Brome	high	low

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