

# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 48: Heathy Woodland

#### Description:

Spans a variety of geologies but is generally associated with nutrient-poor soils including deep uniform sands (aeolian or outwash) and Tertiary sand/clay which has been altered to form quartzite gravel. Eucalypt-dominated low woodland to 10 m tall lacking a secondary tree layer and generally supporting a diverse array of narrow or ericoid-leaved shrubs except where frequent fire has reduced this to a dense cover of bracken. Geophytes and annuals can be quite common but the ground cover is normally fairly sparse.

#### Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> (non-mallee) spp.	50 cm	15 / ha
<i>Eucalyptus</i> (mallee) spp.	30 cm	

#### Tree Canopy Cover:

%cover	Character Species	Common Name
20%	<i>Eucalyptus leucoxyton</i>	Yellow Gum
	<i>Eucalyptus arenacea</i>	Desert Stringybark
	<i>Eucalyptus incrassata</i>	Yellow Mallee
	<i>Eucalyptus leptophylla</i>	Slender-leaf Mallee

#### Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	13	40%	MS
Small Shrub	14	30%	SS
Medium Herb	2	1%	MH
Hummock Grass	1	5%	HG
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	4	10%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Scrambler or Climber	1	1%	SC
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C
<b>Total understorey projective foliage cover</b>		<b>80%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Hakea mitchellii</i>	Desert Hakea
MS	<i>Callitris verrucosa</i>	Scrub Cypress-pine
MS	<i>Leptospermum coriaceum</i>	Mallee Tea-tree
MS	<i>Allocasuarina pusilla</i> s.l.	Dwarf Sheoak
SS	<i>Baeckea crassifolia</i>	Desert Baeckea
SS	<i>Leucopogon rufus</i>	Ruddy Beard-heath
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
SS	<i>Brachyloma ericoides</i> ssp. <i>ericoides</i>	Brush Heath
PS	<i>Astroloma humifusum</i>	Cranberry Heath
MH	<i>Goodenia geniculata</i>	Bent Goodenia
MH	<i>Glischrocaryon behrii</i>	Golden Pennants
HG	<i>Triodia scariosa</i>	Porcupine Grass
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Lomandra juncea</i>	Desert Mat-rush
MTG	<i>Lepidosperma carphoides</i>	Black Rapier-sedge
MTG	<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily
MNG	<i>Lepidobolus drapetocoleus</i>	Scale Shedder
MNG	<i>Hypolaena fastigiata</i>	Tassel Rope-rush
TTG	<i>Schoenus breviculmis</i>	Matted Bog-sedge
SC	<i>Billardiera cymosa</i> s.l.	Sweet Apple-berry

# EVC 48: Heathy Woodland – Lowan Mallee bioregion

**Recruitment:**

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

**Organic Litter:**

40 % cover

**Logs:**

15 m/0.1 ha.

**Weediness:**

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MTG	<i>Pentstemon airoides</i> ssp. <i>airoides</i>	False Hair-grass	high	low

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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 leucoxylon</i>	Yellow Gum
	<i>Callitris gracilis</i> ssp. <i>murrayensis</i>	Slender Cypress-pine
	<i>Allocasuarina luehmannii</i>	Buloke
	<i>Eucalyptus porosa</i>	Black Mallee-box
	<i>Eucalyptus silvestris</i>	Woodland Box
	<i>Eucalyptus microcarpa</i>	Grey Box

#### 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
<b>Total understorey projective foliage cover</b>	<b>70%</b>		

#### 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 - Lowan Mallee 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

## Lowan Mallee 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 wilhelmiana</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>Podotheca 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 - Lowan Mallee 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

## Lowan Mallee bioregion

### EVC 87: Lowan Sands Mallee

#### Description:

Low woodland to mallee shrubland to 7 m tall, commonly dominated by *Eucalyptus arenacea* with a heathy understorey. Found on deep to moderately deep siliceous sands of aeolian origin.

#### Tree Canopy Cover:

% cover	Character Species	Common Name
25%	<i>Eucalyptus arenacea</i> <i>Eucalyptus incrassata</i>	Desert Stringybark Yellow Mallee

#### Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	5	35%	MS
Small Shrub	7	30%	SS
Prostrate Shrub	1	1%	PS
Medium Herb	4	10%	MH
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	5	5%	MTG
Medium to Tiny Non-tufted Graminoid	2	10%	MNG
<b>Total understorey projective foliage cover</b>		<b>60%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Leptospermum myrsinoides</i>	Heath Tea-tree
MS	<i>Banksia marginata</i>	Silver Banksia
MS	<i>Callitris rhomboidea</i>	Oyster Bay Cypress-pine
MS	<i>Allocasuarina pusilla</i> s.l.	Dwarf Sheoak
SS	<i>Hibbertia sericea</i> s.l.	Silky Guinea-flower
SS	<i>Isopogon ceratophyllus</i>	Horny Cone-bush
SS	<i>Hibbertia virgata</i>	Twiggy Guinea-flower
SS	<i>Phyllota pleurandroides</i>	Heathy Phyllota
MH	<i>Goodenia geniculata</i>	Bent Goodenia
MH	<i>Argentipallium obtusifolium</i>	Blunt Everlasting
MH	<i>Gonocarpus tetragynus</i>	Common Raspwort
MH	<i>Wahlenbergia gracilentia</i> s.l.	Annual Bluebell
LTG	<i>Xanthorrhoea australis</i>	Austral Grass-tree
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Lepidosperma carphoides</i>	Black Rapier-sedge
MTG	<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass
MTG	<i>Lomandra juncea</i>	Desert Mat-rush
MNG	<i>Hypolaena fastigiata</i>	Tassel Rope-rush
MNG	<i>Lepidobolus drapetocoleus</i>	Scale Shedder
TTG	<i>Centrolepis strigosa</i> ssp. <i>strigosa</i>	Hairy Centrolepis
TTG	<i>Schoenus breviculmis</i>	Matted Bog-sedge
SC	<i>Cassytha glabella</i>	Slender Dodder-laurel
SC	<i>Cassytha pubescens</i> s.s.	Downy Dodder-laurel

# EVC 87: Lowan Sands Mallee - Lowan Mallee bioregion

**Recruitment:**

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

**Organic Litter:**

5% cover

**Logs:**

5 m/0.1 ha. (note: large log class is not applicable)

**Weediness:**

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MNG	<i>Ehrharta calycina</i>	Perennial Veldt Grass	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 88: Heathy Mallee

#### Description:

Low mallee shrubland to low open mallee shrubland to 4 m with a dense to moderately dense understorey of heathy shrubs. Occurs on infertile siliceous Lowan Sand on dunefields and sandplains. This is a prominent EVC in the central Big Desert.

#### Tree Canopy Cover:

% cover	Character Species	Common Name
25%	<i>Eucalyptus incrassata</i>	Yellow Mallee
	<i>Eucalyptus leptophylla</i>	Slender-leaf Mallee
	<i>Eucalyptus arenacea</i>	Desert Stringybark

#### Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	6	30%	MS
Small Shrub	7	20%	SS
Large Herb	2	1%	LH
Medium Herb	3	5%	MH
Hummock Grass	1	5%	HG
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	3	5%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Soil Crust	na	10%	S/C
<b>Total understorey projective foliage cover</b>		<b>55%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Calytrix tetragona</i>	Common Fringe-myrtle
MS	<i>Hakea mitchellii</i>	Desert Hakea
MS	<i>Leptospermum coriaceum</i>	Mallee Tea-tree
MS	<i>Babingtonia behrii</i>	Broom Baeckea
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
SS	<i>Baeckea crassifolia</i>	Desert Baeckea
SS	<i>Stenanthemum leucophractum</i>	White Cryptandra
SS	<i>Cryptandra tomentosa</i>	Prickly Cryptandra
LH	<i>Helichrysum leucopsidium</i>	Satin Everlasting
MH	<i>Goodenia geniculata</i>	Bent Goodenia
MH	<i>Goodenia robusta</i>	Woolly Goodenia
HG	<i>Triodia scariosa</i>	Porcupine Grass
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Lepidosperma carphoides</i>	Black Rapier-sedge
MTG	<i>Lomandra juncea</i>	Desert Mat-rush
MTG	<i>Lomandra collina</i>	Pale Mat-rush
MNG	<i>Lepidobolus drapetocoleus</i>	Scale Shedder
MNG	<i>Hypolaena fastigiata</i>	Tassel Rope-rush
TTG	<i>Schoenus breviculmis</i>	Matted Bog-sedge
SC	<i>Cassytha glabella</i>	Slender Dodder-laurel
SC	<i>Billardiera cymosa s.l.</i>	Sweet Apple-berry

# EVC 88: Heathy Mallee - Lowan Mallee bioregion

**Recruitment:**

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

**Organic Litter:**

10% cover

**Logs:**

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

**Weediness:**

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MTG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	high
MTG	<i>Ehrharta calycina</i>	Perennial Veldt Grass	high	high

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 89: Dunefield Heathland

#### Description:

Treeless heathland or low shrubland to 2 m tall. Very scattered small mallee form trees may be present. In recently burnt stands (less than 20 years since fire) an open sub-shrub and ground stratum is also common. Occurs on deep siliceous sand on minor dunes and undulating sandplains where siliceous Lowan Sand of coastal origins has accumulated to some depth.

#### Life Forms:

Life form	#Spp	%Cover	LF code
Medium Shrub	6	50%	MS
Small Shrub	6	20%	SS
Medium Herb	4	5%	MH
Hummock Grass	1	1%	HG
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	3	5%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Soil Crust	na	10%	S/C
<b>Total understorey projective foliage cover</b>		<b>60%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Leptospermum myrsinoides</i>	Heath Tea-tree
MS	<i>Banksia marginata</i>	Silver Banksia
MS	<i>Callitris verrucosa</i>	Scrub Pine
MS	<i>Hakea mitchellii</i>	Desert Hakea
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
SS	<i>Hibbertia virgata</i>	Twiggy Guinea-flower
SS	<i>Spyridium subochreatum</i> var. <i>subochreatum</i>	Velvet Spyridium
SS	<i>Leucopogon woodsii</i>	Nodding Beard-heath
MH	<i>Goodenia geniculata</i>	Bent Goodenia
MH	<i>Podotheca angustifolia</i>	Sticky Heads
MH	<i>Comesperma calymega</i>	Blue-spike Milkwort
MH	<i>Argentipallium obtusifolium</i>	Blunt Everlasting
HG	<i>Triodia scariosa</i>	Porcupine Grass
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Lepidosperma carphoides</i>	Black Rapier-sedge
MTG	<i>Lomandra juncea</i>	Desert Mat-rush
MTG	<i>Lomandra leucocephala</i> ssp. <i>robusta</i>	Woolly Mat-rush
MNG	<i>Lepidobolus drapetocoleus</i>	Scale Shedder
MNG	<i>Hypolaena fastigiata</i>	Tassel Rope-rush
TTG	<i>Schoenus breviculmis</i>	Matted Bog-sedge
SC	<i>Cassytha glabella</i>	Slender Dodder-laurel

#### Recruitment:

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

#### Organic Litter:

5% cover

#### Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MTG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	high
MTG	<i>Ehrharta calycina</i>	Perennial Veldt Grass	high	high

# EVC 89: Dunefield Heathland - Lowan Mallee bioregion

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 90: Tea-tree Scrub

#### Description:

A dense scrub 2 to 3 m tall of Mallee Tea-tree *Leptospermum coriaceum* associated with the Outlet Creek system. Tea-tree scrub may represent the colonization of Lowan sand deposits that have either been derived from the riverine system or been recently blown across it. The natural firebreak that the riverine system provides may also be an important determinant of its composition. This vegetation community could also possibly exist as a result of an extremely long period without fire in the EVC Sandplain Heathland.

#### Lifeforms:

Life form	#Spp	%Cover	LF code
Medium Shrub	5	55%	MS
Small Shrub	5	15%	SS
Medium Herb	4	5%	MH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	5	10%	MTG
Medium to Tiny Non-tufted Graminoid	1	1%	MNG
Scrambler/Climber	1	1%	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>Leptospermum coriaceum</i>	Mallee Tea-tree
MS	<i>Aotus subspinescens</i>	Mallee Aotus
MS	<i>Calytrix tetragona</i>	Common Fringe-myrtle
MS	<i>Banksia ornata</i>	Desert Banksia
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
SS	<i>Hibbertia virgata</i>	Twiggy Guinea-flower
SS	<i>Micromyrtus ciliata</i>	Heath-myrtle
SS	<i>Phyllota pleurandroides</i>	Heathy Phyllota
MH	<i>Poranthera microphylla</i>	Small Poranthera
MH	<i>Podotheca angustifolia</i>	Sticky Long-heads
MH	<i>Wahlenbergia gracilentia</i> s.l.	Annual Bluebell
LTG	<i>Triodia scariosa</i>	Porcupine Grass
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Lomandra leucocephala</i> ssp. <i>robusta</i>	Woolly Mat-rush
MTG	<i>Lepidosperma carphoides</i>	Black Rapier-sedge
TTG	<i>Centrolepis cephaliformis</i> ssp. <i>cephaliformis</i>	Cushion Centrolepis
MNG	<i>Lepidobolus drapetocoleus</i>	Scale Shedder
SC	<i>Thysanotus patersonii</i>	Twining Fringe-lily



# EVC 90: Tea-tree Scrub – Lowan Mallee bioregion

**Recruitment:**

Continuous.

**Organic Litter:**

20% cover

**Weediness:**

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Silene apetala</i> var. <i>apetala</i>	Mallee Catchfly	high	low
MH	<i>Silene gallica</i>	French Catchfly	high	low
MH	<i>Reichardia tingitana</i>	False Sow-thistle	high	low
MTG	<i>Pentaschistis airoides</i> ssp. <i>airoides</i>	False Hair-grass	high	low
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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
<b>Total understorey projective foliage cover</b>		<b>60%</b>	

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>Podotheca 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 - Lowan Mallee 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

## Lowan Mallee bioregion

### EVC 93: Sandstone Ridge Shrubland (*syn.* Broombush Mallee)

#### Description:

Low open mallee to 3 m tall typically with a tall shrubby understorey, or shrubland with scattered emergent mallees. A good field character for this EVC is the dominance or co-dominance of the tall shrub *Melaleuca uncinata* in shrubland or as an understorey shrub in Mallee vegetation. Confined to the crests of outcropping Parilla sandstone ridges and also where these ridges are at least partially obscured by a shallow mantle of Lowan sand.

+ mallee only component (ignore when assessing shrubland areas and standardise final score as appropriate)

#### Tree Canopy Cover<sup>+</sup>:

%cover	Character Species	Common Name
15%	<i>Eucalyptus incrassata</i>	Yellow Mallee
	<i>Eucalyptus leptophylla</i>	Slender-leaf Mallee

#### Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	4	40%	MS
Small Shrub	4	5%	SS
Medium Herb	2	5%	MH
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	3	5%	MTG
Tiny Tufted Graminoid	1	1%	TTG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	15%	S/C
<b>Total understorey projective foliage cover</b>		<b>60%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Melaleuca uncinata</i>	Broombush
MS	<i>Babingtonia behrii</i>	Broom Baeckea
MS	<i>Callitris verrucosa</i>	Scrub Cypress-pine
MS	<i>Hakea mitchellii</i>	Desert Hakea
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
SS	<i>Eutaxia microphylla</i>	Common Eutaxia
SS	<i>Hibbertia virgata</i>	Twiggy Guinea-flower
SS	<i>Micromyrtus ciliata</i>	Heath-myrtle
MH	<i>Helichrysum leucopsidium</i>	Satin Everlasting
MH	<i>Glischrocaryon behrii</i>	Golden Pennants
MH	<i>Podrothea angustifolia</i>	Sticky Long-heads
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass
MTG	<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
SC	<i>Thysanotus patersonii</i>	Twining Fringe-lily
SC	<i>Billardiera cymosa</i> s.l.	Sweet Apple-berry

# EVC 93: Sandstone Ridge Shrubland (*syn.* Broombush Mallee) - Lowan Mallee Bioregion

## Recruitment:

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

## Organic Litter:

10% cover

## Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MTG	<i>Pentaschistis airoides</i> subsp. <i>airoides</i>	False Hair-grass	high	high
MTG	<i>Ehrharta calycina</i>	Perennial Veldt Grass	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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## EVC/Bioregion Benchmark for Vegetation Quality Assessment

### Lowan Mallee Bioregion

#### EVC 93\_61: Treed Sandstone Ridge Shrubland

##### Description:

Low open mallee to 3 m tall typically with a tall shrubby understorey, or shrubland with scattered emergent mallees. A good field character for this EVC is the dominance or co-dominance of the tall shrub *Melaleuca uncinata* in shrubland or as an understorey shrub in Mallee vegetation. Confined to the crests of outcropping Parilla sandstone ridges and also where these ridges are at least partially obscured by a shallow mantle of Lowan sand.

##### Tree Canopy Cover:

%cover	Character Species	Common Name
15%	<i>Eucalyptus costata</i> subsp. <i>murrayana</i>	Yellow Mallee
	<i>Eucalyptus leptophylla</i>	Slender-leaf Mallee

##### Understorey:

Lifeform	#Spp	%Cover	LF Code
Medium Shrub	4	40%	MS
Small Shrub	4	5%	SS
Medium Herb	2	5%	MH
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	3	5%	MTG
Tiny Tufted Graminoid	1	1%	TTG
Bryophytes/Lichens		10%	BL
Soil Crust		15%	S/C

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Babingtonia behrii</i>	Broom Baeckea
MS	<i>Callitris verrucosa</i>	Scrub Cypress-pine
MS	<i>Hakea mitchellii</i>	Desert Hakea
MS	<i>Melaleuca uncinata</i>	Broombush
SS	<i>Eutaxia microphylla</i>	Common Eutaxia
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
SS	<i>Hibbertia virgata</i>	Twiggy Guinea-flower
SS	<i>Micromyrtus ciliata</i>	Heath-myrtle
MH	<i>Glischrocaryon behrii</i>	Golden Pennants
MH	<i>Helichrysum leucopsidium</i>	Satin Everlasting
MH	<i>Podotheca angustifolia</i>	Sticky Long-heads
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass
TTG	<i>Various spp.</i>	

##### Recruitment:

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

# EVC 93\_61: Treed Sandstone Ridge Shrubland

## Organic Litter:

10 % cover

## Logs:

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

## Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MTG	<i>Pentstemon airoides subsp. airoides</i>	False Hair-grass	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high
MTG	<i>Ehrharta calycina</i>	Perennial Veldt-grass	high	high
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 95: Red Swale Mallee

#### Description:

Dense to sometimes whipstick form of mallee shrubland to 6 m tall with a typically sparse understorey. This EVC does not necessarily occur in dune swales, however it is often found on low points in the jumbled or parabolic dunefields of the Lowan where the underlying Parilla ridges may be "exposed" and are mantled by a thin layer of aeolian material.

#### Tree Canopy Cover:

% cover	Character Species	Common Name
30%	<i>Eucalyptus dumosa</i>	Dumosa Mallee
	<i>Eucalyptus calycogona</i>	Red Mallee
	<i>Eucalyptus leptophylla</i>	Slender-leaf Mallee
	<i>Eucalyptus socialis</i>	Grey Mallee

#### Understorey:

Life form	#Spp	%Cover	LF code
Medium Shrub	4	10%	MS
Small Shrub	3	5%	SS
Large Herb	1	1%	LH
Medium Herb	7	10%	MH
Small or Prostrate Herb	2	1%	SH
Large Tufted Graminoid	1	1%	LTG
Medium to Small Tufted Graminoid	3	5%	MTG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	20%	S/C
<b>Total understorey projective foliage cover</b>		<b>55%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Dodonaea bursariifolia</i>	Small Hop-bush
MS	<i>Beyeria opaca</i>	Dark Turpentine Bush
MS	<i>Melaleuca uncinata</i>	Broombush
SS	<i>Westringia rigida</i>	Stiff Westringia
MH	<i>Chenopodium desertorum</i>	Frosted Goosefoot
MH	<i>Stenopetalum lineare</i>	Narrow Thread-petal
MH	<i>Crassula colorata</i>	Dense Crassula
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MTG	<i>Lepidosperma viscidum</i>	Sticky Sword-sedge
MTG	<i>Dianella revoluta s.l.</i>	Black-anther Flax-lily
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass

#### Recruitment:

Episodic/Fire. Desirable period between disturbances is 30 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
T	<i>Olea europaea</i>	Olive	high	high
LH	<i>Brassica tournefortii</i>	Mediterranean Turnip	high	high
LH	<i>Opuntia</i> spp.	Cactus	high	high
MH	<i>Gazania linearis</i>	Gazania	high	high
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

# EVC 95: Red Swale Mallee - Lowan Mallee bioregion

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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>Eucalyptus porosa</i>	Black Mallee-box
	<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>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
SS	<i>Rhagodia spinescens</i>	Hedge 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 - Lowan Mallee 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	low	high

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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 - Lowan Mallee 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>Pentstemon 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

## Lowan Mallee 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<sup>+</sup>:

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<sup>+</sup>:

% 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 <sup>+</sup>		5%	IT
Understorey Tree or Large Shrub <sup>+</sup>	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

# EVC 98: Semi-arid Chenopod Woodland - Lowan Mallee bioregion

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 billardierei</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
SH	<i>Calotis hispidula</i>	Hairy Burr-daisy
SH	<i>Plagiobothrys elachanthus</i>	Hairy Forget-me-not
SH	<i>Isoetopsis graminifolia</i>	Grass Cushion
SH	<i>Pogonolepis muelleriana</i>	Stiff Cup-flower

**Recruitment:**  
Continuous

**Organic Litter:**  
5% in shrubland  
15% in woodland.

**Logs<sup>+</sup>:**  
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>Critesion 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

### Lowan Mallee Bioregion

#### EVC 98\_61: Non-treed 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.

##### Understorey:

Lifeform	#Spp	%Cover	LF Code
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		10%	BL
Soil Crust		30%	S/C

\*Largely seasonal lifeform

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Atriplex nummularia</i>	Old-man Saltbush
MS	<i>Maireana pyramidata</i>	Sago Bush
MS	r <i>Maireana sedifolia</i>	Pearl Bluebush
MS	<i>Nitraria billardiarei</i>	Nitre-bush
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
SS	k <i>Sclerolaena divaricata</i>	Tangled Copperburr
SS	<i>Sclerolaena obliquicuspis</i>	Limestone Copperburr
SS	<i>Sclerolaena tricuspis</i>	Streaked Copperburr
PS	<i>Sclerochlamys brachyptera</i>	Short-wing Saltbush
LH	<i>Polycalymma stuartii</i>	Poached-eggs Daisy
MH	<i>Brachyscome lineariloba</i>	Hard-head Daisy
MH	<i>Osteocarpum acropterum</i> var. <i>deminutum</i>	Babbagia
MH	<i>Zygophyllum ammophilum</i>	Sand Twin-leaf
MH	<i>Zygophyllum crenatum</i>	Notched Twin-leaf
SH	<i>Calotis hispidula</i>	Hairy Burr-daisy
SH	<i>Isoetopsis graminifolia</i>	Grass Cushion
SH	<i>Plagiobothrys elachanthus</i>	Hairy Forget-me-not
SH	<i>Pogonolepis muelleriana</i>	Stiff Cup-flower
LNG	Various spp.	
MTG	Various spp.	
MNG	Various spp.	

# EVC 98\_61: Non-treed Semi-arid Chenopod Woodland

## Recruitment:

Continuous.

## Organic Litter:

5 % cover

## Weediness:

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

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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
<b>Total understorey projective foliage cover</b>		<b>30%</b>	

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>Critesion 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>Critesion murinum</i> subsp. <i>glaucum</i>	Blue Barley-grass	high	high

# EVC 101: Samphire Shrubland - Lowan Mallee bioregion

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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> <i>Acacia stenophylla</i>	Black Box 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 55%**

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 tricuspis</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



# EVC 103: Riverine Chenopod Woodland (*syn.* Black Box Chenopod Woodland) - Lowan Mallee Bioregion

## Recruitment:

Continuous

## Organic Litter:

5% cover

## Logs:

5m/0.1 ha.

## 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

## Lowan Mallee 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 - Lowan Mallee bioregion

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 132: Plains Grassland

#### Description:

A grassland occurring in slight (and more fertile) depressions of the open, sandy plains south-east of the Danyo fault in the Murray Sunset National Park. The grasslands were subject to past heavy grazing by sheep and were the preferred locations for stock tanks that further exacerbated pressure placed on them by stock, goats, rabbits and hares. Many of the original chenopod shrubs were eaten out and replaced by introduced grasses and herbs. It is possible that the EVC was originally Semi-arid Chenopod Woodland (shrubland version).

#### Lifeforms:

Life form	#Spp	%Cover	LF code
Small Shrub	5	10%	SS
Medium Herb*	12	15%	MH
Small or Prostrate Herb *	4	10%	SH
Medium to Small Tufted Graminoid	4	25%	MTG
Medium to Tiny Non-tufted Graminoid	2	1%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	20%	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
SS	<i>Sclerolaena diacantha</i>	Grey Copperburr
MH	r <i>Podolepis canescens</i>	Grey Podolepis
MH	<i>Senecio pinnatifolius</i>	Variable Groundsel
MH	<i>Goodenia pusilliflora</i>	Small-flower Goodenia
MH	<i>Rhodanthe stuartiana</i>	Clay Sunray
SH	<i>Pogonolepis muelleriana</i>	Stiff Cup-flower
SH	<i>Isoetopsis graminifolia</i>	Grass Cushion
SH	<i>Calotis hispidula</i>	Hairy Burr-daisy
SH	<i>Maireana lobiflora</i>	Lobed Bluebush
LTG	<i>Austrostipa nodosa</i>	Knotty Spear-grass
MTG	<i>Austrostipa eremophila</i>	Desert Spear-grass
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MTG	<i>Aristida contorta</i>	Sand Wire-grass

#### Recruitment:

Continuous

#### Organic Litter:

5% cover

# EVC 132: Plains Grassland - Lowan Mallee bioregion

## Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
LH	<i>Salvia verbenaca</i>	Wild Sage	high	high
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Silene apetala</i> var. <i>apetala</i>	Mallee Catchfly	high	high
MH	<i>Erodium cicutarium</i>	Common Heron's-bill	high	low
MH	<i>Leontodon taraxacoides</i> ssp. <i>taraxacoides</i>	Hairy Hawkbit	high	low
MH	<i>Amsinckia calycina</i>	Hairy Fiddle-neck	high	high
MH	<i>Amsinckia lycopsoides</i>	Bugloss Fiddle-neck	high	high
MH	<i>Buglossoides arvensis</i>	Corn Gromwell	high	high
SH	<i>Medicago minima</i>	Little Medic	high	high
SH	<i>Mesembryanthemum crystallinum</i>	Common Ice-plant	high	high
MTG	<i>Moraea setifolia</i>	Thread Iris	high	low
MTG	<i>Critesion murinum</i> ssp. <i>glaucum</i>	Blue Barley-grass	high	high
MNG	<i>Bromus rubens</i>	Red Brome	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	high

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 195: Seasonally Inundated Shrubby Woodland

#### Description:

Shrub-dominated eucalypt woodland to 15 m tall with an understorey visually dominated by medium shrubs and including a range of sedges and grasses and herbs including a number of annuals. Occurs on moderately fertile, poorly-drained, shallow sand or silty topsoils over heavier clay subsoils that naturally impede drainage. Often associated with recent Quaternary swamp deposits and broad, seasonal drainage lines and outwash flats between sand dunes. Soils are generally inundated or waterlogged in winter and baked hard in summer, which promotes sedges and annual species.

#### 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 leucoxylon</i>	Yellow Gum

#### Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	7	35%	MS
Small Shrub	4	5%	SS
Prostrate Shrub	1	1%	PS
Large Herb	3	5%	LH
Medium Herb	4	10%	MH
Small or Prostrate Herb	3	5%	SH
Medium to Small Tufted Graminoid	6	20%	MTG
Medium to Tiny Non-tufted Graminoid	4	5%	MNG
Tiny Tufted Graminoid	3	1%	TTG
Epiphyte	1	1%	EP
Bryophytes/Lichens	na	10%	BL

# EVC 195: Seasonally Inundated Shrubby Woodland - Lowan Mallee bioregion

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Melaleuca gibbosa</i>	Slender Honey-myrtle
MS	<i>Calytrix tetragona</i>	Common Fringe-myrtle
MS	<i>Hakea rugosa</i>	Dwarf Hakea
MS	<i>Grevillea ilicifolia</i>	Holly Grevillea
SS	<i>Hibbertia riparia</i>	Erect Guinea-flower
SS	<i>Eutaxia microphylla</i> var. <i>microphylla</i>	Common Eutaxia
SS	<i>Hibbertia sericea</i> s.l.	Silky Guinea-flower
SS	<i>Astroloma conostephioides</i>	Flame Heath
PS	<i>Astroloma humifusum</i>	Cranberry Heath
LH	<i>Arthropodium strictum</i> s.s.	Chocolate Lily
LH	<i>Arthropodium</i> spp. (s.s.)	Vanilla Lily
LH	<i>Senecio tenuiflorus</i>	Slender Fireweed
MH	<i>Wahlenbergia gracilentia</i> s.s.	Hairy Annual-bluebell
MH	<i>Chamaescilla corymbosa</i> var. <i>corymbosa</i>	Blue Stars
MH	<i>Microseris scapigera</i> spp. agg.	Yam Daisy
SH	<i>Hydrocotyle laxiflora</i>	Stinking Pennywort
SH	<i>Myriocephalus rhizocephalus</i>	Woolly-heads
SH	<i>Drosera glanduligera</i>	Scarlet Sundew
SH	r <i>Gnephosis drummondii</i>	Slender Cup-flower
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Schoenus apogon</i>	Common Bog-sedge
MTG	<i>Dianella revoluta</i> s.s.	Black-anther Flax-lily
MTG	<i>Austrodanthonia setacea</i> var. <i>setacea</i>	Bristly Wallaby-grass
MTG	<i>Lomandra juncea</i>	Desert Mat-rush
MNG	<i>Hypolaena fastigiata</i>	Tassel Rope-rush
TTG	<i>Centrolepis strigosa</i> ssp. <i>strigosa</i>	Hairy Centrolepis
TTG	<i>Centrolepis aristata</i>	Pointed Centrolepis
TTG	<i>Isolepis marginata</i>	Little Club-sedge
EP	<i>Cassytha glabella</i>	Slender Dodder-laurel
EP	<i>Amyema pendula</i>	Drooping Mistletoe
SC	<i>Thysanotus patersonii</i>	Twining Fringe-lily

## 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>Cirsium vulgare</i>	Spear Thistle	high	low
LH	<i>Centaurium tenuiflorum</i>	Slender Centaury	high	low
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low
MNG	<i>Aira elegantissima</i>	Delicate Hair-grass	high	low
MNG	<i>Juncus capitatus</i>	Capitate Rush	high	high
MNG	<i>Vulpia myuros</i>	Rat's-tail Fescue	high	low
MNG	<i>Bromus rubens</i>	Red Brome	high	low
TTG	<i>Cyperus tenellus</i>	Tiny Flat-sedge	high	high

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## EVC/Bioregion Benchmark for Vegetation Quality Assessment

### Lowan Mallee bioregion

#### EVC 291: Cane Grass Wetland

**Description:**

Open-grassland, typically very species-poor except on outer verges, often with monospecific (or virtually so) cane-grass dominated centres. Occur on alluvial plains in shallow (~1 m deep) depressions, on very heavy grey clay soils, prone to turbidity when inundated (4-6 months) and extreme cracking when dry.

**Life Forms:**

Life form	#Spp	%Cover	LF code
Small or Prostrate Herb	2	10%	SH
Medium to Tiny Non-tufted Graminoid	2	50%	MNG
Bryophytes/Lichens	na	10%	BL
<b>Total understorey projective foliage cover</b>		<b>70%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
SH	<i>Lemna disperma</i>	Common Duckweed
SH	<i>Azolla filiculoides</i>	Pacific Azolla
MNG	<i>Eragrostis infecunda</i>	Southern Cane-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge

**Recruitment:**

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

**Organic Litter:**

10% cover

**Weediness:**

There are no consistent weeds in this EVC.

# EVC 291: Cane Grass Wetland – Lowan Mallee bioregion

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 292: Red Gum Swamp

#### Description:

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. River Red Gum woodland to 15 m tall with sedge or grassy-herbaceous ground-layer, comprising various balances of true aquatics and species tolerant of intermittent to seasonal inundation.

#### 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 Shrub	1	1%	MS
Large Herb	3	10%	LH
Medium Herb	10	25%	MH
Small or Prostrate Herb	3	5%	SH
Large Tufted Graminoid	2	5%	LTG
Medium to Small Tufted Graminoid	8	20%	MTG
Medium to Tiny Non-tufted Graminoid	2	15%	MNG
Bryophytes/Lichens	na	10%	BL

LF Code	Species typical of at least part of EVC range	Common Name
T	<i>Allocasuarina luehmannii</i>	Buloke
LH	<i>Villarsia reniformis</i>	Running Marsh-flower
LH	<i>Eryngium ovinum</i>	Blue Devil
LH	<i>Brachyscome cardiocarpa</i>	Swamp Daisy
MH	<i>Potamogeton tricarinatus</i> s.l.	Floating Pondweed
MH	<i>Haloragis aspera</i>	Rough Raspwort
MH	<i>Drosera peltata</i> ssp. <i>peltata</i>	Pale Sundew
MH	<i>Stylidium despectum</i>	Small Trigger-plant
SH	<i>Lobelia pratioides</i>	Poison Lobelia
SH	<i>Solenogyne dominii</i>	Smooth Solenogyne
SH	<i>Neopaxia australasica</i>	White Purslane
LTG	<i>Amphibromus nervosus</i>	Common Swamp Wallaby-grass
LTG	<i>Juncus flavidus</i>	Gold Rush
LTG	<i>Carex tereticaulis</i>	Hollow Sedge
MTG	<i>Juncus holoschoenus</i>	Joint-leaf Rush
MTG	<i>Schoenus tesquorum</i>	Soft Bog-sedge
MTG	<i>Austrodanthonia duttoniana</i>	Brown-back Wallaby-grass
MTG	<i>Lachnagrostis filliformis</i>	Common Blown-grass
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Chorizandra enodis</i>	Black Bristle-sedge



# EVC 292: Red Gum Swamp – Lowan Mallee bioregion

**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
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MH	<i>Cicendia filiformis</i>	Slender Cicendia	high	low
MTG	<i>Briza minor</i>	Lesser Quaking-grass	high	low

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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
<b>Total understorey projective foliage cover</b>		<b>75%</b>	

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 – Lowan Mallee 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

## Lowan Mallee 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
Small Shrub	1	1%	SS
Large Herb	4	10%	LH
Medium Herb	5	10%	MH
Small or Prostrate Herb	1	5%	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
MS	<i>Viminaria juncea</i>	Golden Spray
MS	<i>Melaleuca decussata</i>	Totem-poles
SS	<i>Rubus parvifolius</i>	Small-leaf Bramble
LH	<i>Wahlenbergia gracilis</i> s.s.	Sprawling Bluebell
LH	<i>Myriophyllum crispatum</i>	Upright Water-milfoil
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
LTG	<i>Cyperus gunnii</i> ssp. <i>gunnii</i>	Flecked Flat-sedge
LTG	<i>Carex appressa</i>	Tall Sedge
MTG	<i>Lachnagrostis filiformis</i> var. <i>filiformis</i>	Common Blown-grass
MTG	<i>Juncus amabilis</i>	Hollow Rush
MNG	<i>Eleocharis acuta</i>	Common Spike-sedge
MNG	<i>Cynodon dactylon</i>	Couch
SC	<i>Calystegia sepium</i>	Large Bindweed

#### Recruitment:

Continuous

#### Organic Litter:

30% cover

#### Logs:

20m / 0.1 ha

# EVC 641: Riparian Woodland – Lowan Mallee bioregion

## 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 echioides</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
SC	<i>Galium aparine</i>	Cleavers	high	low

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 676: Salt Paperbark Woodland

#### Description:

Low non-eucalypt woodland to 8 m tall with herbaceous ground-layer dominated by halophytic chenopods and other succulent herbs with a range of annual grasses and herbs. Occurs on heavy soils with large salt concentrations (sometimes with a shallow sand overlay on lake verges) in areas with seasonally waterlogged heavy clay soils on saline flats and lake verges.

#### Tree Canopy Cover:

%cover	Character Species	Common Name
20%	<i>Melaleuca halmaturorum</i> ssp. <i>halmaturorum</i>	Salt Paperbark

#### Life forms:

Life form	#Spp	%Cover	LF code
Prostrate Shrub	1	10%	PS
Medium Herb	3	15%	MH
Small or Prostrate Herb	3	10%	SH
Medium to Small Tufted Graminoid	1	1%	MTG
Soil Crust	na	10%	S/C
<b>Total understorey projective foliage cover</b>		<b>45%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
PS	<i>Wilsonia rotundifolia</i>	Round-leaf Wilsonia
MH	<i>Sarcocornia quinqueflora</i>	Beaded Glasswort
MH	<i>Samolus repens</i>	Creeping Brookweed
MH	<i>Spergularia</i> sp. 3	Salt Sea-spurrey
SH	<i>Selliera radicans</i>	Shiny Swamp-mat
SH	<i>Angianthus pressianus</i>	Salt Angianthus
SH	<i>Apium prostratum</i>	Annual Celery
MTG	<i>Puccinellia stricta</i> var. <i>perlaxa</i>	Plains Saltmarsh-grass

#### Recruitment:

Continuous

#### Logs:

10 m/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
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>Critesion 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>Critesion murinum</i> subsp. <i>glaucum</i>	Blue Barley-grass	high	high

# EVC 676: Salt Paperbark Woodland - Lowan Mallee bioregion

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 710: Damp Heathland

#### Description:

Developed on sites of intermittent waterlogging, typically wet in winter and dry in summer, with low nutrient availability. Closed tall heathland, or scrub if long unburnt. There is a dense ground layer of rushes and sedges, and sometimes emergent eucalypts.

#### Life Forms:

Life form	#Spp	%Cover	LF code
Medium Shrub	6	30%	MS
Small Shrub	5	20%	SS
Prostrate Shrub	2	5%	PS
Medium Herb	6	10%	MH
Small or Prostrate Herb	2	1%	SH
Large Tufted Graminoid	1	5%	LTG
Large Non-tufted Graminoid	1	1%	LNG
Medium to Small Tufted Graminoid	4	10%	MTG
Medium to Tiny Non-tufted Graminoid	3	15%	MNG
Scrambler or Climber	2	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>Leptospermum continentale</i>	Prickly Tea-tree
MS	<i>Epacris impressa</i>	Common Heath
MS	<i>Banksia marginata</i>	Silver Banksia
MS	<i>Leptospermum myrsinoides</i>	Heath Tea-tree
SS	<i>Pultenaea stricta</i>	Rigid Bush-pea
SS	<i>Hibbertia fasciculata</i> var. <i>prostrata</i>	Bundled Guinea-flower
SS	<i>Dillwynia glaberrima</i>	Smooth Parrot-pea
SS	<i>Leucopogon glacialis</i>	Twisted Beard-heath
PS	<i>Xanthosia dissecta</i> s.l.	Cut-leaf Xanthosia
MH	<i>Gonocarpus tetragynus</i>	Common Raspwort
MH	<i>Argentipallium obtusifolium</i>	Blunt Everlasting
MH	<i>Drosera peltata</i> ssp. <i>auriculata</i>	Tall Sundew
SH	<i>Drosera pygmaea</i>	Tiny Sundew
MTG	<i>Patersonia fragilis</i>	Short Purple-flag
MTG	<i>Schoenus apogon</i>	Common Bog-sedge
MNG	<i>Hypolaena fastigiata</i>	Tassel Rope-rush
MNG	<i>Leptocarpus tenax</i>	Slender Twine-rush
MNG	<i>Baumea juncea</i>	Bare Twig-sedge
SC	<i>Cassytha pubescens</i> s.s.	Downy Dodder-laurel
SC	<i>Cassytha glabella</i>	Slender Dodder-laurel

#### Recruitment:

Episodic/Fire. Desirable period between disturbances is 30 years.

#### Organic Litter:

20% cover

#### Weediness:

There are no consistent weeds in this EVC.

# EVC 710: Damp Heathland – Lowan Mallee bioregion

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 803: Plains Woodland

#### Description:

Grassy or sedgy woodland to 15 m tall 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 former Quaternary swamp deposits.

#### Large trees:

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

#### Tree Canopy Cover:

%cover	Character Species	Common Name
15%	<i>Eucalyptus leucoxydon</i>	Yellow Gum
	<i>Allocasuarina luehmannii</i>	Buloke
	<i>Eucalyptus microcarpa</i>	Grey Box
	<i>Eucalyptus melliodora</i>	Yellow Box

#### Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	2	5%	MS
Small Shrub	2	5%	SS
Prostrate Shrub	1	1%	PS
Large Herb	1	1%	LH
Medium Herb	20	25%	MH
Small or Prostrate Herb	4	10%	SH
Large Tufted Graminoid	1	5%	LTG
Large Non-tufted Graminoid	1	1%	LNG
Medium to Small Tufted Graminoid	16	30%	MTG
Medium to Tiny Non-tufted Graminoid	3	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

#### Recruitment:

Continuous

#### Organic Litter:

10 % cover

#### Logs:

10 m/0.1 ha.



# EVC 803: Plains Woodland – Lowan Mallee bioregion

LF Code	Species typical of at least part of EVC range	Common Name
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
PS	<i>Astroloma humifusum</i>	Cranberry Heath
LH	<i>Senecio quadridentatus</i>	Cotton Fireweed
MH	<i>Acaena echinata</i>	Sheep's Burr
MH	<i>Plantago gaudichaudii</i>	Narrow Plantain
MH	<i>Maireana enchylaenoides</i>	Wingless Bluebush
MH	<i>Calocephalus citreus</i>	Lemon Beauty-heads
SH	<i>Solenogyne dominii</i>	Smooth Solenogyne
SH	<i>Oxalis perennans</i>	Grassland Wood-sorrel
SH	<i>Daucus glochidiatus</i>	Austral Carrot
SH	<i>Goodenia pinnatifida</i>	Cut-leaf Goodenia
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Austrostipa scabra</i>	Rough Spear-grass
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Dianella revoluta</i> s.s.	Black-anther Flax-lily
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MNG	<i>Wurmbea dioica</i>	Common Early Nancy
TTG	<i>Centrolepis strigosa</i> ssp. <i>strigosa</i>	Hairy Centrolepis
TTG	<i>Centrolepis aristata</i>	Pointed Centrolepis
EP	<i>Amyema miquelii</i>	Box Mistletoe
SC	<i>Thysanotus patersonii</i>	Twining Fringe-lily
SC	<i>Convolvulus erubescens</i> spp. agg.	Pink Bindweed

## Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
LH	<i>Sonchus oleraceus</i>	Common Sow-thistle	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
MH	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	high	low
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Arctotheca calendula</i>	Cape Weed	high	low
MH	<i>Petrorhagia velutina</i>	Velvety Pink	high	low
MH	<i>Trifolium dubium</i>	Suckling Clover	high	low
MH	<i>Anagallis arvensis</i>	Pimpernel	high	low
SH	<i>Trifolium glomeratum</i>	Cluster Clover	high	low
LNG	<i>Avena fatua</i>	Wild Oat	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
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	low
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	low
MNG	<i>Vulpia 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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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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
<b>Total understorey projective foliage cover</b>		<b>70%</b>	

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>Epaltis 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 – Lowan Mallee bioregion

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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>	50 cm	15/ha
<i>Eucalyptus camaldulensis</i>	70 cm	

#### 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*	4	10%	SH
Medium to Small Tufted Graminoid*	2	5%	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 70%**

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Muehlenbeckia florulenta</i>	Tangled Lignum
MS	<i>Chenopodium nitrariaceum</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
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
LNG	<i>Eragrostis australasica</i>	Cane 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 – Lowan Mallee 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

## Lowan Mallee 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
	<i>Eucalyptus cyanophylla</i>	Blue-leaved 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>	Wooly-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 - Lowan Mallee 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>Critesion</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

## Lowan Mallee 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* ssp. *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<sup>+</sup>:

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

#### Tree Canopy Cover<sup>+</sup>:

% 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 <sup>+</sup>		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

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>Austroanthonia duttoniana</i>	Brown-back Wallaby-grass

# EVC 826: Plains Savannah - Lowan Mallee bioregion

## Recruitment:

Continuous

## Organic Litter:

5% cover

## Logs<sup>+</sup>:

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 Peppercross	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>	Soursob	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>Critesion hystrix</i>	Mediterranean Barley-grass	high	high
MTG	<i>Critesion 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

### Lowan Mallee Bioregion

#### EVC 826\_61: Treed 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* ssp. *murrayensis* to 10 m tall being the dominant trees. Widespread on the northern plains.

##### Large Trees:

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

##### Tree Canopy Cover:

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

##### Understorey:

Lifeform	#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		10%	BL
Soil Crust		25%	S/C

\*Largely seasonal lifeform



# EVC 826\_61: Treed Plains Savannah

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

## Recruitment:

Continuous.

## Organic Litter:

5 % cover

## Logs:

5 m/0.1ha.

## Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
SH	<i>Medicago minima</i>	Little Medic	high	high
LH	<i>Sisymbrium irio</i>	London Rocket	high	high
LH	<i>Salvia verbenaca</i>	Wild Sage	high	high
MS	<i>Lycium ferocissimum</i>	African Box-thorn	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>Hordeum hystrix</i>	Mediterranean Barley-grass	high	high
LH	<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	high
MH	<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	high	high
MH	<i>Hedypnois cretica</i>	Cretan Hedypnois	high	high
MNG	<i>Avena barbata</i>	Bearded Oat	high	high
MNG	<i>Brachypodium distachyon</i>	False Brome	high	high
MTG	<i>Romulea rosea</i>	Onion Grass	high	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	high
LNG	<i>Avena fatua</i>	Wild Oat	high	high
MH	<i>Arctotheca calendula</i>	Cap Weed	high	high

# EVC 826\_61: Treed Plains Savannah

## Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MH	<i>Limonium sinuatum</i>	Notch-leaf Sea-lavender	high	high
MH	<i>Plantago coronopus</i>	Buck's-horn Plantain	high	high
MH	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	high	high
MTG	<i>Romulea minutiflora</i>	Small-flower Onion-grass	high	high
MTG	<i>Poa bulbosa</i>	Bulbous Meadow-grass	high	high
MTG	<i>Lolium rigidum</i>	Wimmera Rye-grass	high	high
MTG	<i>Hordeum murinum</i> s.l.	Barley-grass	high	high
SH	<i>Medicago polymorpha</i>	Burr Medic	high	high
LH	<i>Echium plantagineum</i>	Paterson's Curse	high	high
MH	<i>Spergularia rubra</i> s.l.	Red Sand-spurrey	high	low
LH	<i>Lepidium africanum</i>	Common Peppercross	high	low
MH	<i>Hypochoeris glabra</i>	Smooth Cat's-ear	high	low
MH	<i>Hypochoeris radicata</i>	Cat's Ear	high	low
LH	<i>Helminthotheca echioides</i>	Ox-tongue	high	low
SH	<i>Trifolium glomeratum</i>	Cluster Clover	high	low
MTG	<i>Pentaschistis airoides</i> subsp. <i>airoides</i>	False Hair-grass	high	low
MNG	<i>Aira cupaniana</i>	Quicksilver Grass	high	low
MH	<i>Trifolium striatum</i>	Knotted Clover	high	low
MH	<i>Trifolium subterraneum</i>	Subterranean Clover	high	low

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee 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>Lawrenzia squamata</i>	Thorny Lawrenzia
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>Austroanthonia setacea</i>	Bristly Wallaby-grass

# EVC 829: Chenopod Grassland – Lowan Mallee 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	low
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

## Lowan Mallee 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.	60 cm	15/ha
<i>Allocasuarina</i> spp.	40 cm	
<i>Callitris gracilis</i> ssp. <i>murrayensis</i>	40 cm	

#### Tree Canopy Cover:

% cover	Character Species	Common Name
20%	<i>Eucalyptus leucoxydon</i>	Yellow Gum
	<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
Understorey Tree or Large Shrub	1	5%	T
Medium Shrub	3	10%	MS
Small Shrub	4	20%	SS
Prostrate Shrub	2	5%	PS
Large Herb	1	1%	LH
Medium Herb	7	15%	MH
Small or Prostrate Herb	3	5%	SH
Medium to Small Tufted Graminoid	8	25%	MTG
Tiny Tufted Graminoid*	2	1%	TTG
Medium to Tiny Non-tufted Graminoid	3	1%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C

\* Largely seasonal life form

LF Code	Species typical of at least part of EVC range	Common Name
T	<i>Allocasuarina verticillata</i>	Drooping Sheoke
MS	<i>Calytrix tetragona</i>	Common Fringe-myrtle
MS	<i>Acacia pycnantha</i>	Golden Wattle
SS	<i>Hibbertia stricta</i> s.l.	Upright Guinea-flower
SS	<i>Eutaxia microphylla</i>	Common Eutaxia
SS	<i>Pultenaea hispidula</i>	Rusty Bush-pea
PS	<i>Astroloma humifusum</i>	Cranberry Heath
MH	<i>Microseris scapigera</i> spp. agg.	Yam Daisy
MH	<i>Acaena echinata</i>	Sheep's Burr
MH	<i>Wurmbea dioica</i>	Common Early Nancy
SH	<i>Daucus glochidiatus</i>	Australian Carrot
SH	<i>Hydrocotyle laxiflora</i>	Stinking Pennywort
SH	<i>Drosera whittakeri</i> ssp. <i>aberrans</i>	Scented Sundew
LTG	<i>Austrostipa mollis</i>	Supple Spear-grass
MTG	<i>Schoenus apogon</i>	Common Bog-sedge
MTG	<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass
MTG	<i>Lomandra nana</i>	Dwarf Mat-rush
MTG	<i>Arthropodium strictum</i> s.l.	Chocolate Lily
TTG	<i>Centrolepis strigosa</i> ssp. <i>strigosa</i>	Hairy Centrolepis
TTG	<i>Centrolepis aristata</i>	Pointed Centrolepis
TTG	<i>Aphelia pumilio</i>	Dwarf Aphelia
SC	<i>Thysanotus patersonii</i>	Twining Fringe-lily

# EVC 882: Shallow Sands Woodland - Lowan Mallee bioregion

**Recruitment:**

Continuous

**Organic Litter:**

20% 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
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	high
MTG	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	high	high
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
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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# EVC/Bioregion Benchmark for Vegetation Quality Assessment

## Lowan Mallee bioregion

### EVC 981: Parilla Mallee

#### Description:

Open mallee to 10 m tall supported by shallow accumulations of aeolian material that have been deposited on the slopes of prominent Parilla Sandstone ridges. The understorey is highly variable comprising numerous floristic variants many of which appear to be strongly influenced by land use and fire regime. A well-developed woody shrub layer is typical in relatively undisturbed remnants.

#### Large trees:

Species	DBH(cm)	#/ha
<i>Eucalyptus</i> spp.	20 cm	25/ha
<i>Callitris</i> spp.	35 cm	

#### Tree Canopy Cover:

% cover	Character Species	Common Name
25%	<i>Eucalyptus oleosa</i> ssp. <i>oleosa</i>	Oil Mallee
	<i>Eucalyptus socialis</i>	Grey Mallee
	<i>Eucalyptus dumosa</i>	Dumosa Mallee
	<i>Callitris gracilis</i> ssp. <i>murrayensis</i>	Slender Cypress-pine

#### Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Medium Shrub	4	10%	MS
Small Shrub	3	10%	SS
Large Herb	1	1%	LH
Medium Herb	3	5%	MH
Small or Prostrate Herb	5	5%	SH
Medium to Small Tufted Graminoid	6	15%	MTG
Medium to Tiny Non-tufted Graminoid	1	5%	MNG
Bryophytes/Lichens	na	10%	BL
Soil Crust	na	10%	S/C
<b>Total understorey projective foliage cover</b>		<b>60%</b>	

LF Code	Species typical of at least part of EVC range	Common Name
MS	<i>Pittosporum angustifolium</i>	Weeping Pittosporum
MS	<i>Melaleuca lanceolata</i> ssp. <i>lanceolata</i>	Moonah
MS	<i>Acacia pycnantha</i>	Golden Wattle
MS	<i>Acacia brachybotrya</i>	Grey Mulga
SS	<i>Olearia lanuginosa</i>	Wooly Daisy-bush
SS	<i>Westringia rigida</i>	Stiff Westringia
SS	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
SS	<i>Maireana brevifolia</i>	Short-leaf Bluebush
MH	<i>Helichrysum leucopsidium</i>	Satin Everlasting
SH	<i>Daucus glochidiatus</i>	Austral Carrot
SH	<i>Calandrinia calyptata</i>	Pink Purslane
MTG	<i>Austrostipa</i> spp.	Spear-grass
MTG	<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily
MTG	<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
MTG	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass
MNG	<i>Austrostipa elegantissima</i>	Feather Spear-grass
MNG	<i>Austrostipa platychaeta</i>	Flat-awned Spear-grass
MNG	<i>Austrostipa eremophila</i>	Desert Spear-grass
SC	<i>Clematis microphylla</i>	Small-leaved Clematis

# EVC 981: Parilla Mallee - Lowan Mallee bioregion

**Recruitment:**

Continuous (excluding eucalypt overstorey)

**Organic Litter:**

20% cover

**Logs:**

15m/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>Brassica tournefortii</i>	Mediterranean Turnip	high	high
LH	<i>Centaureum tenuiflorum</i>	Slender Centaury	high	low
LH	<i>Gazania linearis</i>	Gazania	high	high
LH	<i>Sysimbrium</i> spp.	Mustard	high	high
LH	<i>Opuntia robusta</i>	Wheel Cactus	high	high
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
SH	<i>Mesembryanthemum crystallinum</i>	Common Ice-plant	high	high
MNG	<i>Bromus</i> spp.	Brome	high	high
MNG	<i>Schismus barbatus</i>	Arabian Grass	high	low
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
SC	<i>Asparagus asparagoides</i>	Bridal Creeper	high	high

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