

Regional ecosystem 4.3.1

Description: *Eucalyptus camaldulensis* fringing woodland to low woodland, commonly with *E. coolabah*, *Lophostemon grandiflorus* and *Melaleuca fluviatilis*. A lower tree layer may occur, including *M. trichostachya* and *M. bracteata*. Shrubs are usually sparse in the streamlines. The ground layer is dominated by tussock grasses, including *Bothriochloa* spp., *Dichanthium fecundum* and *Chrysopogon fallax*. Sedges are frequent on the channel floors and banks. Occurs on fringes of channels and inter-channel areas of major watercourses in the north-west of the bioregion. Soils vary from very deep, coarse sands to silty clays, sandy clay loams and gravelly loams. Riverine. (BVG1M: 16a).

Vegetation communities in this regional ecosystem include:

4.3.1a: *Eucalyptus camaldulensis* woodland, commonly with *Lophostemon grandiflorus*, *Lysiphyllum gilvum*, *Melaleuca fluviatilis*. Occurs on fringes of major watercourses in erosional landscapes. Not commonly braided. Sandy beds. Riverine. (BVG1M: 16a).

4.3.1b: *Eucalyptus camaldulensis* low woodland, occasionally with *Melaleuca fluviatilis*, *E. coolabah*, *Lophostemon grandiflorus*. The ground layer is sparse tussock grasses. Occurs on banks/fringes of major watercourses of the Georgina River catchment extending from the Northwest Highlands bioregion. Sandy beds. Riverine. (BVG1M: 16a).

4.3.1x1: [RE not in use]²: This regional ecosystem has been amalgamated into 4.3.1. *Eucalyptus camaldulensis* +/- *Melaleuca* spp. +/- *Ficus opposita* +/- *Syzygium eucalyptoides* woodland. Occurs fringing major drainage lines and adjacent areas of floodplain. Riverine. (BVG1M: 16a).

Short description: *Eucalyptus camaldulensis* +/- *Lophostemon grandiflorus*, *Melaleuca* spp. woodland on channel fringes of major watercourses in the north-west

Supplementary descriptions: Neldner (1991), 1a (60); Wilson and Purdie (1990a), W1 (67, 73)

Subregions: 2, 7, 1.3, 1, 3, (1.1), (5.3)

Protected areas:

Extent in reserves: No representation

Wetland: Riverine

Special values: 4.3.1: Area of high fauna diversity.

Comments: 4.3.1: Was previously partly mapped as 4.3.1x1. Highly modified floristic and structural composition due to total grazing pressure. Exotic weed species occur in disturbed sandy areas. Naturalised species associated with this regional ecosystem include **Vachellia farnesiana* and **Parkinsonia aculeata*, which may occur in dense stands above the river banks.
4.3.1b: Heavily invaded by **Cenchrus pennisetiformis*.

Estimated extent:¹ Pre-clearing 61000 ha; Remnant 2021 61000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes: Highly modified floristic and structural composition due to total grazing pressure. Exotic weed species occur in disturbed sandy areas

Regional ecosystem 4.3.2

Description: *Eucalyptus camaldulensis* and/or *E. coolabah* fringing woodland to low woodland. *Acacia cyperophylla* var. *cyperophylla* (in the west) and other shrubs may occur. The ground layer is dominated by perennial tussock grasses, including *Bothriochloa ewartiana*, *Eulalia aurea*, *Arundinella nepalensis*, *Leptochloa digitata* and *Themeda avenacea*. Other ground layer species include *Aristida latifolia*, *Chrysopogon fallax*, *Enteropogon acicularis*, *Sporobolus mitchellii* and *Cyperus victoriensis*. Occurs on fringes of channels and inter-channel flats of larger drainage lines. Soils are variable and include deep, loose coarse sands, silty clays, sandy clay loams and gravelly loams. Riverine. (BVG1M: 16a).

Vegetation communities in this regional ecosystem include:

4.3.2a: Mixed low woodland, with combinations of the species *Eucalyptus coolabah*, *E. camaldulensis*, *Acacia cambagei*, *Lysiphyllum gilvum*, *E. leucophylla* and *A. aneura*. *Corymbia terminalis* and *C. aparrerinja* may occur in the canopy. Occurs on fringes of minor watercourses in erosional landscapes with a mixture of coarse and fine grained parent materials. Southwestern Downs subregion. Riverine. (BVG1M: 16a).

4.3.2b: *Eucalyptus microtheca*, *Eucalyptus camaldulensis* low woodland, occasionally with *Acacia cambagei* and *Corymbia terminalis*. A variable shrub layer may occur. The ground layer is predominantly tussock grasses. Occurs on fringes of minor watercourses extending from the west edge of the Northwest Highlands bioregion with a mixture of coarse and fine grained parent materials. Riverine. (BVG1M: 16a).

4.3.2c: *Eucalyptus camaldulensis* and/or *E. coolabah* woodland. Lower trees include *Melaleuca* spp. and *Lysiphyllum* spp. The ground layer is sparse tussock grasses. Occurs on fringes of major watercourses in the east of the bioregion. Riverine. (BVG1M: 16a).

Short description: *Eucalyptus camaldulensis* and/or *E. coolabah* woodland on fringing larger drainage lines

Supplementary descriptions: Neldner (1991), 1b (59); Wilson and Purdie (1990a), A2, W2 (74)

Subregions: 4, 2, 6, 3, 1, 7, (5), (1.1), (9.5), (1.3), (2.5), (5.4), (1.2), (10.4), (11.26), (2.3)

Protected areas: Bladensburg NP, Lark Quarry CP

Extent in reserves: Low

Wetland: Riverine

Special values: 4.3.2: Ecosystem of high fauna diversity.
4.3.2a: Vegetation community of high fauna diversity.
4.3.2b: Vegetation community of high fauna diversity.

Comments: 4.3.2: Naturalised species associated with this regional ecosystem include **Malvastrum americanum*. Highly modified floristic and structural composition due to total grazing pressure. Disturbed sandy areas are often invaded by introduced weeds. Scattered **Vachellia farnesiana* shrubs (Ht1-2m) occur frequently.
4.3.2a: Was previously mapped as 4.3.4d. Naturalised species associated with this regional ecosystem include **Malvastrum americanum*. Highly modified floristic and structural composition due to total grazing pressure. Disturbed sandy areas are often invaded by introduced weeds. Scattered **Vachellia farnesiana* shrubs (Ht1-2m) occur frequently.
4.3.2b: Naturalised species associated with this regional ecosystem include **Malvastrum americanum*. Highly modified floristic and structural composition due to total grazing pressure. Disturbed sandy areas are often invaded by introduced weeds. Scattered **Vachellia farnesiana* shrubs (Ht1-2m) occur frequently.
4.3.2c: Highly modified floristic and structural composition due to total grazing pressure. Disturbed sandy areas are often invaded by introduced weeds.

Estimated extent:¹ Pre-clearing 102000 ha; Remnant 2021 101000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.3

Description: *Eucalyptus coolabah*, *E. camaldulensis* open woodland. A lower tree understorey or tall shrub layer may be present in places. Low shrubs frequently occur and in places form a distinct layer. The ground layer is variable being composed of grasses and forbs with either predominating depending on seasonal conditions. Asteraceae spp. particularly abundant following favourable seasons. Occurs on levees and banks of intermediate and larger drainage channels and associated alluvial plains. Soils very deep, brown or grey clays with sand and silt bands common in profile. Riverine. (BVG1M: 16a).

Vegetation communities in this regional ecosystem include:

4.3.3a: *Eucalyptus coolabah* usually predominates forming a distinct but discontinuous upper canopy layer. *E. camaldulensis* is conspicuous in sandy or gravelly channels. Occurs on levees and banks of intermediate and larger drainage channels and associated alluvial plains. Soils very deep, brown or grey clays with sand and silt bands common in profile. Riverine. (BVG1M: 16a).

4.3.3b: *Eucalyptus coolabah* usually predominates forming a distinct but discontinuous upper canopy layer. *E. camaldulensis* is conspicuous in sandy or gravelly channels. Occurs on floodplains associated with intermediate and larger drainage channels. Soils very deep, brown or grey clays with sand and silt bands common in profile. Not a Wetland. (BVG1M: 16a).

4.3.3c: *Eucalyptus coolabah*, *E. camaldulensis* low woodland, commonly with *Acacia georginae* and *Lysiphyllum gilvum*. *Corymbia terminalis* and *Melaleuca fluviatilis* may occur in the canopy. A sparse shrub layer may occur. The ground layer is tussock grasses. Occurs on banks/fringes of the braided watercourses adjacent to the Georgina River. Cracking clay soils. Riverine. (BVG1M: 16a).

Short description:	<i>Eucalyptus coolabah</i> , <i>E. camaldulensis</i> +/- <i>Lysiphyllum gilvum</i> open woodland on drainage lines
Supplementary descriptions:	Neldner (1991), 2a (63), 17a (65); Neldner (1984), 32a (32); Wilson and Purdie (1990a), W1 (68), W2 (73); Turner et al. (1993) C1 (24), W3 (24)
Subregions:	7, 1, 1.1, (5.3), (5.1)
Protected areas:	
Extent in reserves:	No representation
Wetland:	Riverine
Special values:	4.3.3: Regional ecosystem of high fauna diversity. 4.3.3a: Vegetation community of high fauna diversity. 4.3.3b: Vegetation community of high fauna diversity.
Comments:	4.3.3: Highly modified structural and floristic composition. Subject to buffel grass * <i>Cenchrus ciliaris</i> invasion. 4.3.3a: Highly modified structural and floristic composition. Subject to buffel grass * <i>Cenchrus ciliaris</i> invasion. 4.3.3b: Highly modified structural and floristic composition. Subject to buffel grass * <i>Cenchrus ciliaris</i> invasion.
Estimated extent: ¹	Pre-clearing 24000 ha; Remnant 2021 24000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	Threatening processes other than clearing.

Regional ecosystem 4.3.4

Description: Eucalyptus coolabah (predominantly) and/or E. microtheca low open woodland to woodland. E. camaldulensis may occur in the canopy. A shrub layer may occur, including Acacia stenophylla and Eremophila bignoniiflora. The ground flora is variable with either grasses or forbs conspicuous depending on seasonal conditions. Occurs on fringes of drainage lines, sometimes braided, within clay and limestone landscapes. Soils deep, grey and brown cracking clays. Sand and silt bands may occur in profile. Riverine. (BVG1M: 16a).

Vegetation communities in this regional ecosystem include:

4.3.4a: Waterholes fringed by Eucalyptus coolabah or sometimes E. camaldulensis open woodland. Occurs in braided channel systems on floodplains. Riverine. (BVG1M: 16a).

4.3.4c: Eucalyptus coolabah low open woodland, occasionally with Acacia georginae, Lysiphyllum gilvum, Corymbia terminalis and E. camaldulensis. The ground layer is tussock grasses. Occurs on banks/fringes of minor braided watercourses through Tertiary clay or limestone landscapes. Cracking clay soils. Riverine. (BVG1M: 16a).

4.3.4d: [RE not in use]²: This vegetation community is now mapped as 4.3.2a. Mixed low woodland, with combinations of the species Eucalyptus coolabah, E. camaldulensis, Acacia cambagei, Lysiphyllum gilvum, E. leucophylla and A. aneura. Corymbia terminalis and C. apparrerinja may occur in the canopy. Occurs on fringes of minor watercourses in erosional landscapes with a mixture of coarse and fine grained parent materials. Loams and clays. Riverine. (BVG1M: 16a).

4.3.4e: Acacia georginae and/or Corymbia terminalis and/or Eucalyptus coolabah low open woodland. The ground layer is tussock grasses, including Eulalia aurea, Astrebla spp. and Chrysopogon fallax. Occurs on fringes of minor channels in undulating Cambrian limestone landscapes. Cracking clay soils. Riverine. (BVG1M: 16a).

4.3.4f: Eucalyptus coolabah and/or E. microtheca low open woodland. Occurs on drainage lines on Astrebla spp. undulating plains and braided channels on alluvial plains, particularly north-east. Riverine. (BVG1M: 16a).

4.3.4x1: Eucalyptus coolabah low open woodland to open forest, commonly with Acacia stenophylla, Acacia cambagei and Atalaya hemiglauc. A sparse shrub layer may occur. The ground layer is tussock grasses. Occurs on channel fringes in broad, braided alluvial systems in Cretaceous mudstone and Tertiary clay landscapes. Cracking clay soils. Riverine. (BVG1M: 16a).

4.3.4x2: Eucalyptus coolabah low open woodland to woodland, commonly with Acacia georginae, Acacia cambagei, Atalaya hemiglauc and Corymbia terminalis. Ventilago viminalis and Grevillea striata may occur in the canopy. A shrub layer may occur, including Acacia spp., Eremophila spp., Senna spp. and Eremophila bignoniiflora. The ground layer is tussock grasses, including Astrebla spp. and annual species. Occurs on active Quaternary alluvial plains, mainly with clay parent material. Cracking clay soils. Not a Wetland. (BVG1M: 16c).

4.3.4x2a: Eucalyptus coolabah low open woodland, commonly with Acacia georginae. A shrub layer commonly occurs, including A. georginae and Eremophila bignoniiflora. The ground layer is tussock grasses, including Astrebla spp. and annual species. Occurs on broad, active Quaternary alluvial plains with clay parent material in the north-west of the bioregion. Cracking clay soils. Not a Wetland. (BVG1M: 16c).

4.3.4x2b: Eucalyptus coolabah low open woodland, commonly with Acacia cambagei, Atalaya hemiglauc and Corymbia terminalis. A sparse shrub layer may occur. The ground layer is tussock grasses. Occurs on active, Quaternary alluvial plains associated with major watercourses in broad clay landscapes in the south-west of the bioregion. Cracking clay soils. Not a Wetland. (BVG1M: 16c).

4.3.4x2c: Mixed low open woodland, with combinations of the species Eucalyptus coolabah, Acacia aneura, A. cambagei, Atalaya hemiglauc, Ventilago viminalis, Grevillea striata and Corymbia terminalis. A shrub layer commonly occurs, including Eremophila spp., Senna spp. and Acacia spp. The ground layer is tussock grasses. Occurs on active, Quaternary alluvial plains of minor watercourses in erosional landscapes. A mixture of fine and coarse grained parent material. Loams and clays. Not a Wetland. (BVG1M: 16c).

4.3.4x2d: Eucalyptus coolabah low woodland, commonly with Lysiphyllum gilvum and Acacia cambagei. The ground layer is tussock grasses. Occurs on alluvial plains of northern flowing rivers, flooded drainage lines and flat plains. Not a Wetland. (BVG1M: 16c).

4.3.4x2e: Eucalyptus coolabah woodland to low open woodland, occasionally with Acacia cambagei, A. tephрина and A. stenophylla. A shrub layer may occur, including Eremophila bignoniiflora and Duma florulenta. The ground layer is tussock grasses. Occurs on active alluvial plains associated with major watercourses in broad clay landscapes in the east of the bioregion. Cracking clay soils. Not a Wetland. (BVG1M: 16c).

Short description: Eucalyptus coolabah open woodland on fringing drainage lines in clay and limestone landscapes

Supplementary descriptions: Neldner (1991), 2b (64); Turner et al. (1993), A3 (24) in part

Subregions: 5, 4, 2, 3, 7, 6, (1), (1.1), (2.5), (1.3), (5.5), (9.5), (2.3), (11.26), (5.1), (6.6), (10.4), (6.9), (5.4), (5.3), (2.8), (5.2), (10.1), (10.2)

Protected areas: Diamantina NP, Bladensburg NP, Astrebla Downs NP, Lochern NP, Idalia NP, Wiliyan-ngurru NP, Combo CP 2, Combo CP 1, Welford NP

Extent in reserves: Low

Wetland: Riverine

Special values: 4.3.4: Regional ecosystem of high fauna diversity.
4.3.4f: Vegetation community of high fauna diversity.

Comments:

Estimated extent:¹ Pre-clearing 1050000 ha; Remnant 2021 1028000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.5

Description: Eucalyptus coolabah and E. camaldulensis fringing woodland. A lower tree or tall shrub layer dominated by Acacia georginae commonly occurs. Low shrubs commonly occur, and in places, form a distinct layer. The ground layer is variable being composed of grasses and forbs with either predominating depending on seasonal conditions. Asteraceae spp. particularly prevalent following favourable seasons. Occurs on fringes of major watercourse channels on braided alluvial plains in the west of the bioregion. Soils very deep, brown or grey clays with sand and silt bands common in profile. Riverine. (BVG1M: 16a).

Vegetation communities in this regional ecosystem include:

4.3.5a: Eucalyptus camaldulensis, E. coolabah woodland, commonly with Lysiphyllum gilvum and Acacia georginae. Melaleuca fluviatilis may occur in areas with greater sand influence. The ground layer is tussock grasses. Occurs on banks/fringes of the Georgina River. Cracking clay soils. Riverine. (BVG1M: 16a).

4.3.5b: [RE not in use]²: This vegetation community is now mapped as 4.3.5x1. Eucalyptus coolabah and/or E. microtheca low open woodland, occasionally with E. camaldulensis and Acacia cambagei. A sparse shrub layer may occur. The ground layer is tussock grasses. Occurs on banks/fringes of northern parts of the Georgina River. Cracking clay soils. Riverine. (BVG1M: 16a).

4.3.5x1: Eucalyptus microtheca or E. coolabah low woodland, occasionally with Acacia stenophylla. A sparse shrub layer may occur. The ground layer is tussock grasses and sedges. Occurs on banks/fringes of northern parts of the Georgina River. Cracking clay soils. Riverine. (BVG1M: 16a).

Short description: Eucalyptus coolabah and E. camaldulensis +/- Acacia georginae woodland fringing braided channels of major watercourses in the west

Supplementary descriptions: Neldner (1991), 2c (63); Wilson and Purdie (1990a), W2 (73)

Subregions: 7, 1, (1.1), (5.3)

Protected areas: Wiliyan-ngurru NP

Extent in reserves: Low

Wetland: Riverine

Special values: 4.3.5: Regional ecosystem of high fauna diversity.
4.3.5x1: Area of high fauna diversity.

Comments: 4.3.5: Georgina River.
4.3.5x1: Was previously mapped as 4.3.5b. Georgina River.

Estimated extent:¹ Pre-clearing 20000 ha; Remnant 2021 20000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.6

Description: Eucalyptus camaldulensis woodland, commonly with Acacia cambagei, Acacia cyperophylla var. cyperophylla and Atalaya hemiglauc. Scattered low shrubs such as Senna artemisioides subsp. oligophylla and Eremophila freelingii may occur. The ground layer is dominated by tussock grasses. Occurs on streamlines and channels draining dissected residuals and plateaus. Soils gravelly loams to sandy clay loams. Riverine. (BVG1M: 16a).

Short description: Eucalyptus camaldulensis +/- Atalaya hemiglauc +/- Acacia cambagei +/- Acacia cyperophylla var. cyperophylla woodland on alluvium

Supplementary descriptions: Neldner (1991), 1c (58)

Subregions:

Protected areas:

Extent in reserves:

Wetland: Riverine

Special values:

Comments:

Estimated extent:¹

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.7

Description: [RE not in use]²: This regional ecosystem was moved to 4.9.10. Acacia georginae tall open shrub land to low woodland (Ht 4-9m; density 25-150/ha). Frequently there is an open shrub stratum dominated by Senna artemisioides subsp. Oligophylla (Ht 1m; density to 1250/ha) with Eremophila freelingii is generally present. Occurs along drainage lines. Soils vary from deep, red and brown cracking clays to alluvial texture contrast soils and non-cracking clays. Riverine. (BVG1M: 26a).

Short description: Acacia georginae and Senna artemisioides subsp. oligophylla +/- Eremophila freelingii tall open shrubland on drainage lines

Supplementary descriptions: Neldner (1991), 28d (23); Wilson and Purdie (1990a), S2 (11)

Subregions:

Protected areas:

Extent in reserves:

Wetland: Riverine

Special values:

Comments: 4.3.7: Georgina River area. In many areas 30-50% of tall shrubs stand dead, although regeneration of Acacia georginae present in some areas (Neldner, 1991).

Estimated extent:¹

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.8

Description: *Acacia cambagei* low woodland to low open forest, occasionally with *Eucalyptus coolabah*. A shrub layer may occur, typically dominated by *A. cambagei*. The ground layer is dominated by tussock grasses, including *Astrebla* spp., *Eulalia aurea*, *Chrysopogon fallax* and *Sporobolus mitchellii*, *Cyperus bifax* and *C. victoriensis*. A large number of mostly ephemerals forbs occur infrequently, including *Abutilon* spp., *Atriplex* spp., *Sclerolaena* spp., *Calotis* spp., *Neptunia* spp., *Sida* spp. Occurs on fringes of braided channels, commonly in eroding, dissected lateritised landscapes. Very deep, crusted, red, brown and grey cracking clays with minor crusted non-cracking red clays. Gravel may occur in the profile and gypsum usually occurs at depth. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.3.8a: *Acacia cambagei*, *Astrebla* spp. low woodland. Occurs on fringes of minor braided channels in broad clay landscapes. Cracking clay soils. Not a Wetland. (BVG1M: 26a).

4.3.8b: *Acacia cambagei*, *Astrebla* spp. low open woodland. Occurs on fringes of minor braided channels in broad clay landscapes. Cracking clay soils. Not a Wetland. (BVG1M: 26a).

4.3.8c: *Acacia cambagei*, *Astrebla* spp. low woodland in shallow drainage depressions with no distinct channel. Occurs on fringes of minor braided channels in broad clay landscapes. Cracking clay soils. Not a Wetland. (BVG1M: 26a).

4.3.8d: Low woodland of *Acacia cambagei* with a sparse tussock grass ground layer of *Astrebla* spp., *Iseilema* spp. and *Eulalia aurea*. Occurs on older alluvium; self-mulching clays. Not a Wetland. (BVG1M: 26a).

4.3.8e: *Acacia cambagei* low woodland to low open forest, occasionally with *Eucalyptus coolabah*, *Atalaya hemiglauc*. A shrub layer, dominated by *Acacia cambagei*, may occur. The ground layer is tussock grasses, commonly *Astrebla* spp. Occurs on fringes of minor braided channels in broad clay landscapes. Cracking clay soils. Riverine. (BVG1M: 26a).

4.3.8f: *Acacia georginae* and/or *Acacia cambagei* low open woodland, occasionally with *Eucalyptus coolabah*. A lower shrub layer of *Acacia georginae* and/or *Acacia cambagei* commonly occurs. The ground layer is patchy tussock grasses. Occurs on fringes of narrow channels, commonly dissecting sandy outwash deposits around the Northwest Highlands bioregional boundary. Gravelly clays and loams. Riverine. (BVG1M: 26a).

Short description:	<i>Acacia cambagei</i> low woodland on braided channels in dissected landscapes
Supplementary descriptions:	Neldner (1991), 5b, 7, 26b (16); Turner et al. (1993), W3 (26); Wilson and Purdie (1990a), W2 (72)
Subregions:	3, 2, 4, 5, (7), (1.3), (1.1), (5.4), (1), (5.5), (5.2), (2.3), (10.4), (6.9), (1.2), (10.1), (6.6), (10.2)
Protected areas:	Diamantina NP, Bladensburg NP, Lochern NP, Idalia NP, Wiliyan-ngurru NP, Lark Quarry CP, Welford NP, Elizabeth Springs CP
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	4.3.8: High fauna diversity compared to surrounding grasslands.
Comments:	4.3.8: Currently subject to clearing in some flatter alluvial areas. Ground layer substantially modified by total grazing pressure. In many areas 10-15% of the <i>A. cambagei</i> trees stand dead. Some areas associated with increased woody cover between 1951 and 1994 (Fensham and Fairfax, 2004). Tree heights 7-11m in wetter situations. 4.3.8b: Currently subject to clearing in some flatter alluvial areas. Ground layer substantially modified by total grazing pressure. In most areas, 10-15% of the <i>A. cambagei</i> trees stand dead.
Estimated extent:¹	Pre-clearing 221000 ha; Remnant 2021 215000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.3.9

Description: *Acacia cambagei* and/or *A. georginae* low open forest to tall open shrubland. A shrub layer commonly occurs, typically dominated by *A. cambagei* or *A. georginae*. The ground layer is dominated by tussock grasses, including *Eragrostis setifolia*, *Astrebla* spp., *Aristida latifolia* and *Bothriochloa ewartiana*. A variety of forbs from the families Asteraceae, Chenopodiaceae, Fabaceae and Malvaceae may be seasonally abundant. Occurs on alluvial plains (commonly in braided systems). Soils vary from deep, red and brown cracking clays to alluvial texture contrast soils and non-cracking clays. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.3.9a: *Acacia georginae* tall open shrubland, occasionally with *Corymbia terminalis*, *Atalaya hemiglauc*a and *Eucalyptus coolabah*. A lower shrub layer may occur, including *Acacia georginae*, *Senna* spp. and *Eremophila* spp. The ground layer is sparse tussock grasses. Occurs on narrow alluvial plains associated with minor watercourses in Tertiary clay plains and limestone landscapes in the far west of the bioregion. Systems are commonly braided. Stripped cracking clay soils with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.3.9b: *Acacia georginae* and/or *Acacia cambagei* low open woodland, occasionally with *Atalaya hemiglauc*a and *Eucalyptus coolabah*. A lower shrub layer of *Acacia georginae* and/or *Acacia cambagei* commonly occurs. The ground layer is patchy tussock grasses. Occurs on narrow, active Quaternary alluvial plains with a mixture of sand and clay material in the west of the bioregion. Loams and clays. Surface gravel commonly occurs. Not a Wetland. (BVG1M: 26a).

4.3.9c: *Acacia cambagei* low woodland to low open forest. A shrub layer may occur, including *Acacia cambagei*, *Eremophila* spp. and *Myoporum acuminatum*. The ground layer is patchy tussock grasses and forbs. Occurs on active Quaternary alluvial plains in the east of the bioregion. Silty clay soils, commonly gravelly. Not a Wetland. (BVG1M: 26a).

Short description: *Acacia cambagei* and/or *A. georginae* low woodland on alluvial plains

Supplementary descriptions: Neldner (1991), 28c (23); Wilson and Purdie (1990a), W2 (11)

Subregions: 1, 7, 4, 5.1, (5), (1.3), (5.2), (6), (10.4), (5.4), (2.5), (1.1), (5.3), (2), (10.2)

Protected areas: Lochern NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values:

Comments: 4.3.9: In many areas 30-50% of tall shrubs stand dead, although regeneration of *Acacia georginae* present in some areas (Neldner, 1991).

Estimated extent:¹ Pre-clearing 119000 ha; Remnant 2021 110000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.10

Description: *Corymbia terminalis* and/or *C. aparrerinja* (or *C. dallachiana*) low open woodland to open forest. Other canopy species may occur, including *Eucalyptus leucophylla*, *Lysiphyllum* spp. or *Grevillea striata*. A shrub layer may occur, including *Acacia* spp. and *Eremophila mitchellii*. The ground layer is tussock grasses, including *Bothriochloa* spp. and *Enteropogon acicularis*. Occurs on levees of major watercourses. Very deep earthy sands or red earth soils. Not a Wetland. (BVG1M: 19b).

Vegetation communities in this regional ecosystem include:

4.3.10a: Mixed low open woodland, with combinations of the species *Corymbia terminalis*, *C. aparrerinja*, *Eucalyptus coolabah*, *Acacia cambagei*, *A. georginae*, *Atalaya hemiglauc*. *Hakea chordophylla* and *Erythrina vespertilio* may occur. The ground layer is tussock grasses. Occurs on active levees of major watercourses of the Georgina River catchment extending from the Northwest Highlands bioregion. Red sands and loams. Not a Wetland. (BVG1M: 19b).

4.3.10b: Mixed open woodland, with combinations of the species *Corymbia terminalis*, *C. aparrerinja*, *Eucalyptus leucophylla* and *Grevillea striata*. *Acacia cambagei*, *E. coolabah* and *Atalaya hemiglauc* commonly occur. The ground layer is tussock grasses. Occurs on sandy and loamy levees of major watercourses. Sandy and loamy soils. Not a Wetland. (BVG1M: 19b).

4.3.10c: *Corymbia terminalis* and/or *C. dallachiana* woodland to open forest. Lower trees include *Lysiphyllum* spp., *Grevillea striata*, *Atalaya hemiglauc* and *Vachellia sutherlandii*. A sparse variable shrub layer may occur. The ground layer is tussock grasses. Occurs on levees of major watercourses in the north-east of the bioregion. Sandy and loamy soils. Not a Wetland. (BVG1M: 19b).

4.3.10x1: Mixed low open woodland to woodland, including combinations of the species *Heliodendron basalticum*, *Ventilago viminalis*, *Lysiphyllum gilvum*, *Acacia cambagei*, *Eucalyptus coolabah* and *Atalaya hemiglauc*. Occasional canopy species include *Eucalyptus populnea*, *Corymbia terminalis* and *Flindersia maculosa*. A sparse shrub layer may occur, usually with *Eremophila mitchellii*. The ground layer is tussock grasses. Active levees and Quaternary alluvial plains of major watercourses in the south-east of the bioregion. Not a Wetland. (BVG1M: 27a).

Short description: *Corymbia terminalis* and/or *C. aparrerinja* (or *C. dallachiana*) open woodland on levees of major watercourses

Supplementary descriptions: Neldner (1991), 19d (44); Wilson and Purdie (1990a), W1 (65)

Subregions: 4, 2, 7, 1.3, 6, 3, (1.1), (1), (2.5), (2.3), (5), (10.4), (11.26), (9.5)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments: 4.3.10b: 4.5.8b has been amalgamated into this vegetation community.
4.3.10x1: Commonly invaded by *Cenchrus ciliaris*.

Estimated extent:¹ Pre-clearing 111000 ha; Remnant 2021 105000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes: Heavily invaded by **Cenchrus pennisetiformis* or **C. ciliaris*.

Regional ecosystem 4.3.11

Description: Eucalyptus coolabah and/or E. camaldulensis low open woodland to low open forest. A secondary tree or shrub layer may occur, including Acacia stenophylla and Lysiphyllum gilvum. Low shrubs frequently occur and in places form a distinct layer. The ground layer is variable, including tussock grasses and forbs, with either predominating depending on seasonal conditions. Occurs fringing in-channel waterholes and billabongs associated with major watercourses. Soils very deep, brown or grey clays with sand and silt bands common in profile. Palustrine. (BVG1M: 34d).

Vegetation communities in this regional ecosystem include:

4.3.11a: [RE not in use]²: This vegetation community is now mapped as 4.3.11d. Eucalyptus coolabah usually predominates forming a distinct but discontinuous upper canopy layer. E. camaldulensis is conspicuous in sandy or gravelly channels. A lower tree understorey or tall shrub layer may be present in places. Low shrubs frequently occur and in places form a distinct layer. The ground layer is variable being composed of grasses and forbs with either predominating depending on seasonal conditions. Asteraceae spp. Particularly prevalent following favourable seasons. Billabongs. Palustrine. (BVG1M: 34d).

4.3.11b: Eucalyptus coolabah and/or E. camaldulensis woodland to open forest. Acacia stenophylla commonly occurs as a lower tree. The ground layer is tussock grasses. Waterholes on major rivers. Riverine. (BVG1M: 16a).

4.3.11c: Eucalyptus coolabah open woodland. The ground layer is variable being composed of grasses and forbs with either predominating depending on seasonal conditions. Waterholes in stranded channels on floodplains. Palustrine. (BVG1M: 34d).

4.3.11d: Eucalyptus coolabah low woodland, occasionally with E. camaldulensis, Acacia cambagei, Atalaya hemiglauc, Corymbia terminalis and C. aparrerinja. Occurs on fringes of wetlands (abandoned channels) on Quaternary alluvial plains with sandy parent material. Cracking clay soils. Palustrine. (BVG1M: 34d).

4.3.11e: Eucalyptus coolabah low woodland, commonly with E. camaldulensis, Lysiphyllum gilvum and Acacia georginae. The ground layer is tussock grasses. Occurs on the fringes of billabongs (abandoned channels) within the braids of the Georgina River and nearby major watercourses. Cracking clay soils. Palustrine. (BVG1M: 34d).

4.3.11x1: Seasonal swamps (wooded). Eucalyptus microtheca low open woodland. Occurs in closed depressions on flood plains associated with seasonal watercourses on and around the margins of clay plains in the Barkly Tableland subregion. Palustrine. (BVG1M: 34d).

Short description:	Eucalyptus coolabah and/or E. camaldulensis woodland fringing in-channel waterholes and billabongs
Supplementary descriptions:	Neldner (1991), 51a (63); Wilson and Purdie (1990a), W2 (73)
Subregions:	1, 7, 5, 3, (4), (2), (5.1), (1.1), (6), (1.3), (5.5), (5.3)
Protected areas:	Wiliyan-ngurru NP
Extent in reserves:	Low
Wetland:	Palustrine
Special values:	4.3.11: Area of high fauna diversity. Habitat for water birds. 4.3.11x1: Area of high fauna diversity.
Comments:	4.3.11: There is considerable floristic and structural variation in this regional ecosystem associated with local environmental conditions. Highly modified floristic and structural composition due to total grazing pressure. 4.3.11d: 4.3.11a has been amalgamated into this vegetation community. 4.3.11x1: Highly modified floristic and structural composition due to total grazing pressure.
Estimated extent:¹	Pre-clearing 59000 ha; Remnant 2021 59000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	Threatening processes other than clearing.

Regional ecosystem 4.3.12

Description: Seasonal swamps. *Chenopodium auricomum* dwarf shrubland to open shrubland. The ground layer is a combination of tussock grasses, sedges and forbs, including *Eragrostis setifolia*, *Sporobolus mitchellii*, *Eleocharis pallens*, *Cullen cinereum* and *Marsilea hirsuta*. Occurs in closed depressions on clay plains. Soils are very deep, moderate to strongly alkaline, grey cracking clays with self-mulching surface. Soils have strong coarse structure and crack widely. Palustrine. (BVG1M: 34b).

Vegetation communities in this regional ecosystem include:

4.3.12a: Seasonal swamps. *Chenopodium auricomum* dwarf open shrubland, commonly with *Eragrostis* spp. and *Astrebla elymoides*. A wooded fringe of *Eucalyptus coolabah* commonly occurs. Occurs in closed depressions on broad clay plains overlying limestones. Cracking clay soils. Palustrine. (BVG1M: 34b).

4.3.12b: Seasonal swamps. *Chenopodium auricomum* dwarf open shrubland. Occurs in closed depressions on clay pans between dunes and associated with sandplains. Soils are very deep, moderate to strongly alkaline, grey cracking clays with self-mulching or curst surface. Weak to moderate gilgai micro relief is common. Soils have strong coarse structure and crack widely. Palustrine. (BVG1M: 34b).

4.3.12c: [RE not in use]²: This vegetation community is now mapped as 4.3.12a and 4.3.12b. *Eucalyptus coolabah* low open woodland. Occurs on closed depressions. Palustrine. (BVG1M: 34b).

4.3.12d: Ephemeral swamps. Mixed herbland, including combinations of the species *Astrebla elymoides*, *Streptoglossa* spp., *Panicum laevinode*, *Cullen cinereum*, *Ipomoea* spp. and *Alternanthera* spp. Isolated *Chenopodium auricomum* may occur. A scattered fringe of *Eucalyptus coolabah* may occur. Occurs in closed depressions on plains of wind-blown clay sediments (parna) overlying Tertiary limestones in the south-west of the bioregion. Palustrine. (BVG1M: 34b).

4.3.12x1: Seasonal swamps (wooded). *Eucalyptus coolabah* and/or *E. microtheca* low open woodland. A shrub layer of *Chenopodium auricomum* may occur. The ground layer is sparse forbs and tussock grasses. Occurs in closed depressions on broad Tertiary plains (Barkly Tableland). Cracking clay soils. Palustrine. (BVG1M: 34b).

4.3.12x2: Seasonal swamps (wooded). *Duma florulenta* open shrubland. A lower shrub layer may occur, including *Corchorus* spp., *Cullen cinereum* and *Chenopodium auricomum*. The ground layer is variable, including forbs and tussock grasses. Occurs in large closed depressions on broad Tertiary clay plains. Cracking clay soils. Palustrine. (BVG1M: 34b).

Short description:	Seasonal swamps. <i>Chenopodium auricomum</i> dwarf shrubland in closed depressions on clay plains
Supplementary descriptions:	Neldner (1991), 35a (76); Wilson and Purdie (1990a), C1 (75, 79), C3 (79), F2 (79)
Subregions:	7, 2, 5, 1, (4), (5.3), (3), (1.1), (5.4), (5.5), (1.2), (1.3), (5.1)
Protected areas:	Diamantina NP, <i>Astrebla</i> Downs NP
Extent in reserves:	Medium
Wetland:	Palustrine
Special values:	4.3.12: Associated with ephemeral lake systems which are important habitat for water birds. Habitat for threatened fauna species including freckled duck <i>Stictonetta naevosa</i> . 4.3.12b: Associated with ephemeral lake systems which are important habitat for water birds. Habitat for threatened fauna species including freckled duck <i>Stictonetta naevosa</i> .
Comments:	4.3.12a: 4.3.12c has been amalgamated into this vegetation community. 4.3.12b: Swamps in closed depressions. Generally in the far west of the bioregion e.g. on the Barkley Tableland. 4.3.12c has been amalgamated into this vegetation community. 4.3.12d: Occurs in small groups from Old Cork station to Diamantina Lakes.
Estimated extent: ¹	Pre-clearing 48000 ha; Remnant 2021 48000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.3.13

Description: *Eragrostis setifolia* (5-25% cover) predominates forming an open tussock grassland. *Astrebula elymoides* (1-10%) may be codominant in some areas. *Chenopodium auricomum* is usually present, and may form a sparse shrub layer (1m tall). The perennial grasses *Astrebula elymoides* and *Sporobolus mitchellii* occur frequently while *Panicum laevinode* and other ephemeral grasses may be seasonally abundant. A variety of forbs may be present, many of them ephemerals. *Calotis hispidula*, *Teucrium integrifolium* and *Trigonella suavissima* occurred frequently, while *Leiocarpa brevicompta* and *Polymeria longifolia* were locally prominent. *Marsilea drummondii* is the most frequent forb and may cover up to 20% of the ground surface. *Marsilea drummondii* is the most frequent forb and may cover up to 20% of the ground surface depending on seasonal conditions. Occurs in internal drainage depressions on flat to gently undulating plains. Soils are very deep grey cracking clays usually with a self-mulching surface. Palustrine. (BVG1M: 34b).

Short description: *Eragrostis setifolia* and *Marsilea drummondii* +/- *Chenopodium auricomum* open grassland in drainage depressions

Supplementary descriptions: Neldner (1991), 43d (94); Wilson and Purdie (1990a), F2 (51)

Subregions:

Protected areas:

Extent in reserves:

Wetland: Palustrine

Special values: 4.3.13: Provides wetland habitat for a flora and fauna.

Comments: 4.3.13: Heavily impacted by total grazing pressure.

Estimated extent:¹

VM class: Of concern

Biodiversity status: Of concern

Biodiversity status notes: Threatening processes other than clearing.

Regional ecosystem 4.3.14

Description: *Astrebla lappacea* tussock grassland to closed tussock grassland, commonly with *A. squarrosa*. Other species include *Aristida latifolia*, *Iseilema vaginiflorum*, *Panicum* spp. A number of forbs are present and increase in density after winter rainfall. Emergent trees are rare, including *Acacia cambagei* and *Eucalyptus coolabah*. Occurs on alluvial plains in clay landscapes dominated by *Astrebla* spp. tussock grasslands. Soils are predominately deep, red, brown or grey, cracking clays. Not a Wetland. (BVG1M: 30a).

Vegetation communities in this regional ecosystem include:

4.3.14a: [RE not in use]²: This vegetation community is now mapped as 4.3.14. *Astrebla lappacea* and/or *A. pectinata* predominates usually in association with *Iseilema vaginiflorum* and form a cover of 10-30%. *A. squarrosa* (1-5%) is usually present, and *A. elymoides* and *Aristida latifolia* frequently form part of the tussock grassland. Occurs on alluvia and drainage lines. Soils are predominately deep to very deep, brown and grey cracking clays with self-mulching surfaces. Not a Wetland. (BVG1M: 30a).

4.3.14b: [RE not in use]²: This vegetation community is now mapped as 4.3.14. *Astrebla lappacea* predominates sometimes in association with *Aristida latifolia* frequently form part of the tussock grassland. Other commonly present species include *Iseilema vaginiflorum*, *Panicum* spp. And *Dichanthium sericeum*. A number of forbs are present and increase in density after winter rainfall. Sparsely scattered shrubs may occur, including *Chenopodium auricomum*. Occurs on seasonally flooded alluvial plains associated with drainage lines. Soils are predominately deep, grey and brown cracking clays often with a thin surface crust. Not a Wetland. (BVG1M: 30a).

Short description: *Astrebla lappacea* +/- *Astrebla squarrosa*, *Aristida latifolia* tussock grassland on alluvial plains

Supplementary descriptions: Neldner (1991), 42b (86); Turner et al. (1993), A1 (20), A3 (25)

Subregions: 5, 4, (6), (5.4), (5.5), (11.26), (9.5), (6.9), (10.1), (6.6), (10.4)

Protected areas: Bladensburg NP, Lochern NP, Idalia NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.3.14: Potential habitat for NCA listed species: *Calotis suffruticosa*, *Dolichocarpa spathulata*.

Comments: 4.3.14: Unmapped areas of *Eucalyptus coolabah* (4.3.3) sometimes present on the drainage channels. Vegetation communities 4.3.14a and 4.3.14b have been amalgamated into this regional ecosystem. This regional ecosystem occurs in more easterly higher rainfall parts of the bioregion compared to the similar regional ecosystem 4.3.17. Being degraded by weed infestation, e.g. prickly acacia **Acacia nilotica*, parkinsonia **Parkinsonia aculeata*.

4.3.14a: Unmapped areas of *Eucalyptus coolabah* (4.3.3) sometimes present on the drainage channels. This regional ecosystem occurs in more easterly higher rainfall parts of the bioregion compared to the similar regional ecosystem 4.3.17. Being degraded by weed infestation, e.g. prickly acacia **Acacia nilotica*, parkinsonia **Parkinsonia aculeata*.

4.3.14b: Unmapped areas of *Eucalyptus coolabah* (4.3.3) sometimes present on the drainage channels. This regional ecosystem occurs in more easterly higher rainfall parts of the bioregion compared to the similar regional ecosystem 4.3.17. Being degraded by weed infestation, e.g. prickly acacia **Acacia nilotica*, parkinsonia **Parkinsonia aculeata*.

Estimated extent:¹ Pre-clearing 825000 ha; Remnant 2021 806000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.15

Description: *Astrebla squarrosa* tussock grassland, commonly with *A. elymoides* and *A. lappacea*. Other species include *Bothriochloa ewartiana*, *Iseilema vaginiflorum* and *Chrysopogon fallax*. A number of ephemeral forbs and grasses may be prominent in good seasons. Sparsely scattered shrubs and trees may occur. Occurs on alluvial plains, immediately above drainage lines. Soils moderately deep to deep, red and brown clays. The surface is usually crusting. Soils are neutral to alkaline and gypsum occurs at depth. Not a Wetland. (BVG1M: 30a).

Short description: *Astrebla squarrosa* +/- *Astrebla* spp., *Bothriochloa ewartiana*, *Iseilema vaginiflorum* tussock grassland on alluvial plains

Supplementary descriptions: Neldner (1991), 42c (90); Wilson and Purdie (1990a), F2 (50)

Subregions: 5, 6, (2.3), (2.8), (9.5), (2.5), (3)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments: 4.3.15: Being invaded by exotic weed species, e.g. *Parkinsonia aculeata*.

Estimated extent:¹ Pre-clearing 380000 ha; Remnant 2021 378000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.16

Description: *Astrebla elymoides* tussock grassland, commonly with *Astrebla squarrosa*, *Aristida latifolia* and *Panicum* spp. *Sesbania chippendalei* and *Chenopodium auricomum* shrubs may occur in the wetter places. *Dichanthium* spp., *Eulalia aurea* and *Iseilema vaginiflorum* are usually conspicuous. A number of ephemeral forbs and grasses may be prominent in good seasons. Sparsely scattered shrubs and trees may occur. Occurs in shallow depressions and drainage lines. Soils moderately deep to deep, red and brown cracking clays. Not a Wetland. (BVG1M: 30a).

Vegetation communities in this regional ecosystem include:

4.3.16a: *Astrebla elymoides* tussock grassland, commonly with *Astrebla* spp., *Eulalia aurea*, *Aristida latifolia*. May include small areas of *Chenopodium auricomum*. Occurs in shallow depressions in broad clay plains, commonly overlying Cambrian limestones. Cracking clay soils. Not a Wetland. (BVG1M: 30a).

Short description: *Astrebla elymoides* +/- *A. squarrosa* +/- *Aristida latifolia* tussock grassland in shallow depressions on alluvium

Supplementary descriptions: Neldner (1991), 43e (90)

Subregions: 7, (1.1), (1.3), (2), (1.2)

Protected areas: Wiliyan-ngurru NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values:

Comments: 4.3.16: Occurs in the west of the bioregion on the Barkly Tableland. Being invaded by exotic weed species e.g. *Parkinsonia aculeata* (*Parkinsonia*).

Estimated extent:¹ Pre-clearing 99000 ha; Remnant 2021 99000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.17

Description: *Astrebla pectinata* tussock grassland to open tussock grassland, commonly *A. lappacea* or *A. elymoides*. Other tussock grasses include *Iseilema vaginiflorum*, *Enneapogon avenaceus*, *Brachyachne convergens*, *Dactyloctenium radulans*, *Dichanthium sericeum* spp. *humilius*, and *Panicum* spp. The forbs *Abutilon malvifolium*, *Crotalaria dissitiflora*, *Goodenia fascicularis*, *Ipomoea lonchophylla*, **Portulaca oleracea*, and *Sida spenceriana* occur frequently. Occurs on alluvial plains. Soils predominately Very deep, neutral to very strongly alkaline, red, brown and grey-brown cracking clays with a crusted or self-mulching surface. Gypsum may be present at depth. Not a Wetland. (BVG1M: 30a).

Vegetation communities in this regional ecosystem include:

4.3.17a: *Astrebla pectinata* tussock grassland, commonly with *Astrebla* spp., *Iseilema* spp., *Eulalia aurea*, *Aristida latifolia*. Emergent *Eucalyptus coolabah*, *Acacia georginae*, *A. cambagei* and *A. victoriae* may occur. Occurs on level, Quaternary alluvial plains, often restricted by higher surfaces. Cracking clay soils. Not a Wetland. (BVG1M: 30a).

4.3.17b: *Astrebla* spp. tussock grassland (commonly *A. elymoides* or *A. pectinata*), commonly with *Eulalia aurea*, *Aristida latifolia*, *Bothriochloa* spp., *Iseilema* spp. Emergent *Eucalyptus coolabah* may occur. Occurs on active Quaternary alluvial plains, commonly within braided alluvial systems. Cracking clay soils. Not a Wetland. (BVG1M: 30a).

Short description:	<i>Astrebla pectinata</i> +/- <i>Astrebla</i> spp. tussock grassland on alluvial plains
Supplementary descriptions:	Neldner (1991), 43b (86); Turner et al. (1993), F5, A3; Wilson and Purdie (1990a), A1, A2, W1 (81)
Subregions:	2, 7, 3, (5), (1), (1.1), (1.3), (5.5), (5.2), (1.2), (5.4), (5.3), (2.8), (5.1)
Protected areas:	<i>Astrebla</i> Downs NP, Diamantina NP, Wiliyan-ngurru NP, Combo CP 1
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	4.3.17: Potential habitat for threatened fauna species including bilby <i>Macrotis lagotis</i> .
Comments:	4.3.17: This regional ecosystem occurs in more westerly, lower rainfall parts of the bioregion compared to the similar regional ecosystem 4.3.14.
Estimated extent: ¹	Pre-clearing 490000 ha; Remnant 2021 490000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.3.18

Description: *Eulalia aurea*, *Astrebla squarrosa* tussock grassland, occasionally with *Dichanthium fecundum* and *D. sericeum* subsp. *polystachyum*. Other conspicuous grasses include *Aristida latifolia*, *Astrebla squarrosa*, *Bothriochloa ewartiana* and *Chrysopogon fallax*. A number of forb species are usually present, but grasses comprise most of the biomass. Trees and shrubs usually do not occur, excepting *Eucalyptus coolabah* along drainage lines. Occurs on alluvial plains, adjacent to drainage lines. Soils generally grey or brown, heavy clays. Not a Wetland. (BVG1M: 30a).

Vegetation communities in this regional ecosystem include:

4.3.18a: Mixed tussock grassland, with combinations of the species *Chrysopogon fallax*, *Astrebla* spp., *Aristida latifolia*, *Eulalia aurea* and annual grasses. Emergent *Acacia georginae* and *Corymbia terminalis* may occur. Occurs on narrow alluvial plains associated with minor watercourses in Cambrian limestone landscapes. Cracking clay soils. Not a Wetland. (BVG1M: 30a).

4.3.18x1: *Eulalia aurea* and *Astrebla* spp. tussock grassland, occasionally with small areas of *Chenopodium auricomum*. Emergent *Acacia georginae*, *Atalaya hemiglaucula*, *Eucalyptus coolabah* and *Acacia cambagei* may occur. Occurs on broad, active Quaternary alluvial plains and depressions. Cracking clay soils overlying limestones. Not a Wetland. (BVG1M: 30a).

4.3.18x1a: *Eulalia aurea* and *Astrebla* spp. tussock grassland, occasionally with small areas of *Chenopodium auricomum*. Groves of emergent *Acacia georginae* may occur. Occurs on broad, active Quaternary alluvial plains, commonly with many small drainage lines. Cracking clay soils overlying limestones. Not a Wetland. (BVG1M: 30a).

4.3.18x1b: *Eulalia aurea*, *Astrebla elymoides* and *A. pectinata* tussock grassland. Emergent *Acacia georginae*, *Atalaya hemiglaucula*, *Eucalyptus coolabah* and *Acacia cambagei* may occur. Occurs in depressions subject to seepage from Cambrian limestones. Cracking clay soils. Not a Wetland. (BVG1M: 30a).

Short description: *Eulalia aurea*, *Astrebla squarrosa* +/- *Astrebla* spp. tussock grassland on alluvial plains

Supplementary descriptions: Neldner (1991), 45a (93)

Subregions: 7, 1, 1.1, (1.2)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments:

Estimated extent:¹ Pre-clearing 22000 ha; Remnant 2021 22000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.19

Description: *Dichanthium* spp., and *Eulalia aurea* tussock grassland. Other species include *Astrebula* spp., *Bothriochloa ewartiana* and *Chrysopogon fallax*. Trees and shrubs usually do not occur, excepting *Eucalyptus coolabah* along drainage lines. Occurs on alluvial plains adjacent to drainage lines. Soils generally grey or brown, heavy clays. Not a Wetland. (BVG1M: 30a).

Short description: *Dichanthium* spp., *Eulalia aurea* +/- *Astrebula* spp. tussock grassland on alluvial plains

Supplementary descriptions: Neldner (1991), 45b (93)

Subregions: 5, (6), (2.3)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments:

Estimated extent:¹ Pre-clearing 100000 ha; Remnant 2021 100000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.20

Description: Mixed tussock grassland to open herbland (or bare when dry), including a combination of the species *Sporobolus actinocladius*, *Eragrostis setifolia*, *Tripogon loliiformis*, *Aristida* spp., *Astrebula* spp., *Sclerolaena* spp. and *Atriplex* spp. After favourable seasons, herbs may temporarily dominate. Ephemerals include *Iseilema vaginiflorum*, *Arabidella nasturtium*, *Atriplex velutinella*, *Brachyscome dentata*, *Pycnosorus pleiocephalus*, *Ethuliopsis cunninghamii*, *Euphorbia drummondii*, *Goodenia fascicularis* and *Senecio pinnatifolius* var. *pinnatifolius*. Isolated emergent trees may occur, including *Acacia cambagei* and *Eucalyptus coolabah*. Occurs on silty alluvial plains of major watercourses. Soils very deep, grey and brown cracking clays with thin sandy or silty material on the surface. Flooding frequency is variable, depending on position in landscape. Not a Wetland. (BVG1M: 31a).

Vegetation communities in this regional ecosystem include:

4.3.20x1: Mixed tussock grassland, including combinations of the species *Aristida contorta*, *Eragrostis* spp., *Eulalia aurea*, *Astrebula* spp., *Aristida latifolia* and *Chrysopogon fallax*. Emergent *Eucalyptus coolabah* and *Acacia cambagei* may occur. Occurs on highly active Quaternary alluvial plains of major watercourses. Reddish to pale sandy and loamy soils. Not a Wetland. (BVG1M: 31a).

Short description: Short grasses +/- *Astrebula* spp., *Sclerolaena* spp. and *Atriplex* spp. tussock grassland to open herbland on silty alluvial plains

Supplementary descriptions: Mills (1980), A3; Neldner (1984), 68a, b, c, d; Wilson and Purdie (1990a), A1, A2, W1, W2 (83); Neldner (1991), 48; Turner et al. (1993), A3, C1

Subregions: 2, 3, 4, 5, 1, (7), (1.1), (5.3), (1.3), (6.9), (5.5), (6), (5.4), (2.3), (5.2), (11.26), (6.8), (6.6), (5.1), (10.4), (10.1), (10.2)

Protected areas: Diamantina NP, *Astrebula* Downs NP, Lochern NP, Idalia NP, Bladensburg NP, Lark Quarry CP, Welford NP, Combo CP 1, Combo CP 2, Elizabeth Springs CP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.3.20: Potential habitat for threatened fauna species including plains-wanderer *Pedionomus torquatus*, fierce snake (western taipan) *Oxyuranus microlepidotus* and night parrot *Pezoporus occidentalis*.

Comments: 4.3.20: Highly modified floristic composition due to total grazing pressure. Scalding frequent (Mills, 1980).

Estimated extent:¹ Pre-clearing 986000 ha; Remnant 2021 976000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.21

Description: Acacia peuce occurs in mono-specific stands, forming a low open woodland. A sparse shrub layer of young A. peuce is frequently present, while other shrubs and low trees such as Eremophila maculata, Senna artemisioides subsp. oligophylla and S. phyllodinea occur in the adjacent areas. The ground layer is usually sparse, and dominated by Aristida spp. and Sclerolaena spp. Occurs on lower slopes of levees and alluvial plains. Soils deep, alluvial texture contrast soils with a sandy A horizon. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.3.21x50: Acacia peuce low open woodland. The ground layer is sparse tussock grasses. Occurs on red sand deposits above current flood levels (likely degraded deposits of wind-blown sand). Not a Wetland. (BVG1M: 26a).

Short description: Acacia peuce low open woodland on alluvium

Supplementary descriptions: Deveson, (1980); Neldner (1991), 11 (75); Wilson and Purdie (1990a), A1 (61), W1 (66)

Subregions: 2, (5.3)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values: 4.3.21: Habitat for vulnerable plant species including Acacia peuce.
4.3.21x50: Habitat for vulnerable plant species including Acacia peuce.

Comments: 4.3.21: A naturally rare community. This regional ecosystem has moved to 4.3.21x50. Burke River. Regeneration is limited in some populations possibly due to total grazing pressure.
4.3.21x50: A naturally rare community. Burke River. Regeneration is limited in some populations possibly due to total grazing pressure.

Estimated extent:¹ Pre-clearing 5000 ha; Remnant 2021 5000 ha

VM class: Of concern

Biodiversity status: Of concern

Biodiversity status notes:

Regional ecosystem 4.3.22

Description: Springs. Occurs on recent alluvia and fine-grained sedimentary rock (shales) and fed by the Great Artesian Basin. Palustrine. (BVG1M: 34e).

Short description: Springs on recent alluvia and fine-grained sedimentary rock

Supplementary descriptions: Habermehl (1982); Ponder and Clark (1990); Fairfax and Fensham (2002); Fensham et al. (2004)

Subregions: 2

Protected areas: Elizabeth Springs CP

Extent in reserves: High

Wetland: Palustrine

Special values: 4.3.22: Habitat for endemic species including fish (Elizabeth Springs goby Chlamydogobius micropterus); the snail Jardinella isolata; and endangered plant species including Eriocaulon carsonii and Myriophyllum artesium.

Comments: 4.3.22: Springs in Tertiary aquifers may exist, but are poorly known. All the springs are within Great Artesian Basin discharge areas. Impacted by artificial extraction, excavation, pig rooting and stock trampling. Springs in Tertiary aquifers may exist, but are poorly known.

Estimated extent:¹ Pre-clearing 200 ha; Remnant 2021 200 ha

VM class: Of concern

Biodiversity status: Endangered

Biodiversity status notes: Rare ecosystem < 1000ha pre-clearing extent and subject to high total grazing pressure.

Regional ecosystem 4.3.23

Description: Mixed low open woodland, including combinations of the species *Acacia tephрина*, *Lysiphyllum* spp., *Acacia cambagei*, *Ventilago viminalis*, *Atalaya hemiglaucа* and *Flindersia maculosa*. Occasional canopy species include *Alectryon oleifolius*, *Corymbia terminalis*, *Eucalyptus coolabah* and *Acacia crombiei*. A sparse shrub layer may occur. The ground layer is tussock grasses. Occurs on active, silty alluvial plains, predominantly in the north-east of the bioregion. Not a Wetland. (BVG1M: 27a).

Vegetation communities in this regional ecosystem include:

4.3.23x40: *Acacia tephрина* woodland to low woodland, occasionally with *A. cambagei*, *A. crombiei* and *Atalaya hemiglaucа*. A shrub layer usually occurs, including canopy species, *Eremophila mitchellii* and *Flindersia maculosa*. The ground layer includes tussock grasses and forbs. Occurs on gravelly, old alluvial clay deposits in the east of the bioregion. Not a Wetland. (BVG1M: 27a).

Short description: *Acacia tephрина*, *Lysiphyllum* spp., *Acacia cambagei* and *Ventilago viminalis* in mixed low open woodlands on alluvial plains in the north-east

Supplementary descriptions: 'Neldner (1991), 12 (26)

Subregions: 4, 6, (5), (9.5), (10.4), (10.2), (6.9), (6.8)

Protected areas: Idalia NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.3.23: Habitat for *Acacia crombiei* (Vulnerable).
4.3.23x40: Habitat for *Acacia crombiei* (Vulnerable).

Comments:

Estimated extent:¹ Pre-clearing 141000 ha; Remnant 2021 124000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.3.24

Description: Seasonal swamps. *Chenopodium auricomum* dwarf shrubland to open dwarf shrubland. Occurs in closed depressions on floodplains. Soils are very deep, moderate to strongly alkaline, grey cracking clays with self-mulching or curst surface. Soils have strong coarse structure and crack widely. Palustrine. (BVG1M: 34b).

Vegetation communities in this regional ecosystem include:

4.3.24a: Seasonal swamps. *Chenopodium auricomum* dwarf open shrubland, commonly with *Eragrostis* spp. and *Astrebula elymoides*. A wooded fringe of *Eucalyptus coolabah* commonly occurs. Occurs in closed depressions on Quaternary alluvial plains. Cracking clay soils. Palustrine. (BVG1M: 34g).

4.3.24b: Seasonal swamps. *Chenopodium auricomum* +/- *Duma florulenta* open shrubland. Occurs in closed depressions on braided alluvial plains. Palustrine. (BVG1M: 34b).

4.3.24x1: *Chenopodium auricomum* dwarf open shrubland. Emergent *Eucalyptus coolabah* may occur. The ground layer is variable, from bare to scattered forbs and tussock grasses. Occurs in linear open depressions in major braided alluvial systems. Cracking clay soils. Riverine. (BVG1M: 34b).

Short description: Seasonal swamps. *Chenopodium auricomum* +/- *Duma florulenta* dwarf shrubland in closed depressions on floodplains

Supplementary descriptions: Neldner (1991), 35a (76); Wilson and Purdie (1990a), C1 (75, 79), C3 (79), F2 (79)

Subregions: 4, 2, 5, (7), (5.5), (2.3), (1.1), (5.3), (3), (6.9), (5.4)

Protected areas: Lochern NP, Diamantina NP

Extent in reserves: Medium

Wetland: Palustrine

Special values:

Comments: 4.3.24: Floodplain swamps associated with river systems throughout the bioregion.
4.3.24b: Floodplain swamps associated with river systems throughout the bioregion.

Estimated extent:¹ Pre-clearing 47000 ha; Remnant 2021 47000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.4.1

Description: *Astrebula pectinata* tussock grassland to open tussock grassland, occasionally with *Astrebula elymoides*, *Aristida latifolia*, *Eulalia aurea* or *Astrebula lappacea*. Ephemeral grasses commonly occur, including *Iseilema vaginiflorum*, *Dichanthium* spp., *Panicum* spp. The forb diversity is high, and many species are ephemerals, which may also become seasonally abundant. Frequent species include *Abutilon malvifolium*, *Sclerolaena glabra*, *S. lanicuspis*, *Calotis hispidula*, *Crotalaria dissitiflora*, *Euphorbia drummondii*, *Salsola australis*, *Sida fibulifera* and *Sida trichopoda*. Other species including many from the Asteraceae, Brassicaceae, Chenopodiaceae, Convolvulaceae, Euphorbiaceae Fabaceae, Liliaceae, Malvaceae and Zygophyllaceae occur infrequently. Occurs extensively on flat plains formed from Tertiary clay deposits overlying limestone deposits. Soils generally red and brown, heavy cracking clays with surface stone present in some areas. Not a Wetland. (BVG1M: 30b).

Vegetation communities in this regional ecosystem include:

4.4.1a: [RE not in use]²: This vegetation community is now mapped as 4.9.14x41. *Aristida latifolia*, *Enneapogon polyphyllus* open grassland sometimes wooded with scattered *Atalaya hemiglaucula* and *Ventilago viminalis*. Gilgai depressions dominated by perennial grasses such as *Bothriochloa ewartiana*, *Eulalia aurea* and *Astrebula* spp. Occurs on level to gently undulating plains formed from Tertiary alluvium and parna. Associated soils are generally shallow to deep, red clays and minor texture contrast soils with moderate to abundant amounts of ironstone and lateritic or siliceous gravel on the surface. Not a Wetland. (BVG1M: 27a).

4.4.1b: *Astrebula* spp. grassland wooded with *Vachellia sutherlandii*. Occurs on fine textured Tertiary alluvium. Not a Wetland. (BVG1M: 30b).

4.4.1c: *Astrebula pectinata*, *Aristida latifolia* tussock grassland to open tussock grassland. Other species include *Astrebula elymoides*, *Iseilema vaginiflorum*, *Sida fibulifera*, *Brachyachne convergens* *Dactyloctenium radulans* and *Dichanthium sericeum* spp. *humilius*. A range of forbs occur, depending on seasonal conditions. Occurs on old alluvial plains in the north west of the bioregion. Soils predominately Very deep, neutral to very strongly alkaline, red, brown and grey-brown cracking clays with a crusted or self-mulching surface. Gypsum may be present at depth. Not a Wetland. (BVG1M: 30a).

4.4.1d: *Astrebula pectinata* tussock grassland, commonly with *Eulalia aurea*, *Astrebula* spp., *Aristida latifolia*,

Iseilema spp., annual grasses and forbs. Emergent *Atalaya hemiglauc*, *Acacia georginae*, *Acacia cambagei* and *Ventilago viminalis* may occur. Occurs on broad, Tertiary clay plains, commonly overlying limestones. Occasionally overlain by Quaternary sand deposits. Cracking clay soils. Surface gravel lag may occur. Not a Wetland. (BVG1M: 30b).

4.4.1e: *Astrebla pectinata* tussock grassland, commonly with *Eulalia aurea*, *Astrebla* spp., *Aristida latifolia*, *Iseilema* spp. Emergent *Atalaya hemiglauc* and *Acacia cambagei* may occur. Occurs on old alluvial clay plains (early Pleistocene surface). Cracking clay soils. Not a Wetland. (BVG1M: 30b).

4.4.1f: *Astrebla lappacea* tussock grassland, commonly with *Aristida latifolia*, *Iseilema* spp., *Astrebla* spp.. Emergent *Acacia cambagei* and *Acacia tephrrina* may occur. Occurs on Tertiary high-level clay alluvial deposits near the Thomson River. Commonly gravelly. Not a Wetland. (BVG1M: 30b).

4.4.1g: *Astrebla lappacea* tussock grassland, commonly with *Astrebla* spp. and *Aristida latifolia*. Occurs on flat to gently undulating clay deposits in the north-east of the bioregion. Not a Wetland. (BVG1M: 30b).

4.4.1x2: [RE not in use]²: This regional ecosystem is now mapped as 4.5.6x5. Low open woodland and woodland of *Eucalyptus microtheca*. Occurs around the edge of cracking clay plains, usually where there is a thin surface layer of sand. Not a Wetland. (BVG1M: 18c).

4.4.1x3: [RE not in use]²: This regional ecosystem is now mapped as 4.9.14x40. *Acacia cambagei* low woodland with a sparse tussock grass ground layer of *Astrebla* spp., *Iseilema* spp. and *Eulalia aurea*. Occurs on older alluvium; self-mulching clays. Not a Wetland. (BVG1M: 26a).

4.4.1x4: Seasonally variable mosaic of *Astrebla pectinata* +/- *Astrebla* spp. tussock grassland and sparse forbland. In tussock grassland dominated areas *Astrebla pectinata* (5-25% cover) predominates, In places, *Astrebla lappacea* and *Astrebla elymoides* may be codominant. *Aristida latifolia* and *Iseilema vaginiflorum* occur frequently and may be abundant in some areas. Other short lived grasses may be abundant in wet summers. Areas dominated by sparse forbland are floristically variable depending on seasonal conditions and local environment and often include *Salsola australis*, *Atriplex* spp., *Frankenia* spp., *Sclerolaena* spp. and less frequently *Maireana* spp. Occurs on flat to undulating plains formed on Cainozoic deposits. Soils deep, usually with a weak gilgai microrelief, stony surface, red cracking clays. Not a Wetland. (BVG1M: 30b).

4.4.1x4a: Mixed herbland to open herbland (seasonally variable), including combinations of the species *Trianthema triquetra*, *Iseilema vaginiflorum*, *Sida fibulifera*, *Pycnosorus thompsonianus*, *Astrebla pectinata* and *Salsola australis*. Other species include *Frankenia serpyllifolia*, *Portulaca* spp. and *Dichanthium sericeum* subsp. *humilius*. Occurs on undulating plains of wind-blown clay (parna) overlying Cretaceous mudstones. Red-brown clays with variable amounts of ironstone gravel in the profile. Not a Wetland. (BVG1M: 30b).

4.4.1x4b: Mixed open tussock grassland, including a combination of the species *Astrebla* spp., *Aristida* spp. and *Enneapogon* spp. Emergent *Atalaya hemiglauc*, *Acacia cambagei* and *Ventilago viminalis* may occur. Includes areas of ferruginous surface gravel. Rises with variable layer of Tertiary deposit over Cretaceous mudstones. Large amounts of ironstone gravel in the profile. Red-brown clays. Not a Wetland. (BVG1M: 30b).

4.4.1x5: Seasonably variable mosaic of *Astrebla lappacea* +/- *Enneapogon* spp. open grassland and sparse open forbland. In grassland dominated areas *Astrebla lappacea* predominates with short grasses and forbs codominant in favourable seasonal conditions. *Astrebla elymoides* is often present as scattered tussocks, while the ephemeral grasses *Iseilema vaginiflorum* and *Enneapogon avenaceus* are abundant after summer rainfall. Ephemeral forbs are abundant after winter rainfall. *Astrebla pectinata* predominates after several dry years, while *Astrebla lappacea* and *Dichanthium* spp. increase in wetter years. Areas dominated by sparse forbland are floristically variable depending on seasonal conditions and local environment and often include *Salsola australis*, *Atriplex* spp., *Frankenia* spp., *Sclerolaena* spp. and less frequently *Maireana* spp. Occurs on flat to gently undulating plains. Soils shallow to moderately deep, fertile, red and brown cracking clays. Low to high amounts of ironstone gravel on the surface with traces throughout the profile. Soils derived from Cainozoic sediments (land zone 4). Not a Wetland. (BVG1M: 30b).

4.4.1x6: *Astrebla* spp. (predominantly *A. elymoides*), *Aristida latifolia*, *Dichanthium* spp., tussock grassland. *Atalaya hemiglauc* may occur as an emergent or in small patches. Occurs on undulating Tertiary clay plains (southern Wondoola Plain) overlying Cretaceous mudstones. Cracking clay soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 30b).

4.4.1x7: *Astrebla lappacea* tussock grassland. Emergent *Acacia cambagei* commonly occur. Occurs on gently undulating plains of wind-blown clay (parna) overlying Tertiary limestones/mudstones. Red powdery clays. Not a Wetland. (BVG1M: 30b).

Short description:	<i>Astrebla pectinata</i> +/- <i>Aristida latifolia</i> +/- <i>Eulalia aurea</i> grassland on Tertiary clays overlying limestone
Supplementary descriptions:	Wilson and Purdie (1990a), F2 (48, 55); Neldner (1991), 43a (88)
Subregions:	2, 7, 3, (1), (1.1), (4), (1.3), (5), (1.2), (5.2), (5.5), (5.4), (5.3), (2.8), (5.1), (2.3)
Protected areas:	<i>Astrebla</i> Downs NP, Diamantina NP, Lochern NP, Wiliyan-ngurru NP, Lark Quarry CP, Elizabeth Springs CP
Extent in reserves:	Medium

Wetland: Not a Wetland

Special values:

Comments: 4.4.1: Barkly Tableland.
 4.4.1c: was 4.3.17a in version 7, changed to correct land zone in version.
 4.4.1f: Barkly Tableland.
 4.4.1g: Barkly Tableland.
 4.4.1x2: Barkly Tableland.
 4.4.1x4a: Was previously mapped predominantly as 4.9.5b.
 4.4.1x4b: Was previously mapped as 4.9.5d.
 4.4.1x5: Barkly Tableland.
 4.4.1x7: Barkly Tableland.

Estimated extent:¹ Pre-clearing 3106000 ha; Remnant 2021 3102000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.4.2

Description: *Astrebla pectinata*, *Iseilema* spp. tussock grassland, commonly with *Eulalia aurea*, *Dichanthium sericeum* subsp. *polystachyum*, *Sorghum* spp. Occurs on clay plains of late Tertiary alluvium. Not a Wetland. (BVG1M: 30b).

Short description: *Astrebla pectinata* and *Iseilema* spp. grassland

Supplementary descriptions:

Subregions: 7, (1.2)

Protected areas: Boodjamulla (Lawn Hill) NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values:

Comments: 4.4.2: Occurs on older alluvium (Qps) on edges of the Barkly Tableland.

Estimated extent:¹ Pre-clearing 148000 ha; Remnant 2021 148000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.5.1

Description: [RE not in use]²: This regional ecosystem is now mapped in part as 4.5.3a, 4.5.3x1b and 4.5.6x1. *Acacia aneura* predominates and forms a distinct but discontinuous canopy (4-6m tall). *A. aneura* often occurs in diffuse groves, with grasses dominating the intergrove spaces. *Atalaya hemiglauca*, *Acacia excelsa* subsp. *Angusta* and *Grevillea striata* are frequent canopy or emergent trees. Scattered shrubs may be present, but do not form a conspicuous layer. The ground layer varies from sparse to open, and is dominated usually by *Aristida* spp. Or *Thyridolepis* spp. Scattered forbs are present. Occurs on gently undulating plains, formed from Quaternary sands overlying Cretaceous sediments. Soils are moderately deep, massive red earths with lateritic gravel or ironstone occurring throughout the profile or at depth and deep, red, structured gradational soils. The structured soils have a massive sandy clay loam surface grading into a structured sandy to medium clay. Soils are moderate to slightly acid. Not a Wetland. (BVG1M: 23a).

Short description: *Acacia aneura* +/- *Atalaya hemiglauca* +/- *Grevillea striata* low woodland on sand plains

Supplementary descriptions: Neldner (1991), 4b (1); Wilson and Purdie (1990a), M1 (15 - western)

Subregions:

Protected areas:

Extent in reserves:

Wetland: Not a Wetland

Special values:

Comments: 4.5.1: Winton plateau.

Estimated extent:¹

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.5.2

Description: *Acacia aneura* low woodland (primarily *A. aneura* var. *major*). A variable shrub layer may occur, including *Eremophila* spp., *Senna* spp. and *Acacia* spp. The ground layer is dominated by tussock grasses and forbs. Occurs on flat to gently undulating tops of dissected residual tablelands and associated plains. Soils shallow, gravelly red clays, gravelly red earths and loamy red earths. Lateritic gravel common on surface. Not a Wetland. (BVG1M: 23a).

Short description: *Acacia aneura* low woodland on Quaternary sand sheets

Supplementary descriptions: Mills (1980), M3; Neldner (1991), 24b (10)

Subregions: 4, (5.5), (5.4)

Protected areas: Lochern NP, Welford NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.5.2: Potential habitat for threatened fauna species including night parrot *Pezoporus occidentalis*.

Comments: 4.5.2: *A. aneura* is fire sensitive, and fire may act with effects of soil and micro topography variations to determine current distribution (Neldner, 1991).

Estimated extent:¹ Pre-clearing 57000 ha; Remnant 2021 53000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.5.3

Description: *Acacia aneura* tall open shrubland to open scrub. Scattered *Acacia ligulata*, *Senna artemisioides* subsp. *helmsii* and *Senna artemisioides* subsp. *oligophylla* shrubs occur frequently, and other *Acacia* spp., *Cassia* spp. and *Eremophila* spp. infrequently. The ground layer is dominated by hummock grasses, either *Triodia brizoides* or *T. molesta*. The ground cover hummocks are usually sparse, but the grasses *Amphipogon carcinus* and *Aristida* spp. may become prominent. The forb *Euphorbia inappendiculata* occurs frequently, and species from other families including *Chenopodiaceae*, *Fabaceae* and *Malvaceae* are present infrequently. Occurs on flat to gently undulating tops of dissected residual tablelands and associated plains. Soils shallow, gravelly red clays, gravelly red earths and loamy red earths. Lateritic gravel common on surface. Not a Wetland. (BVG1M: 23b).

Vegetation communities in this regional ecosystem include:

4.5.3a: *Acacia aneura* and/or *A. cambagei* low open woodland. A variable shrub layer commonly occurs, including *Senna* spp., *Eremophila* spp. and *Acacia* spp. The ground layer is patchy with predominantly annual tussock grasses. Includes small areas of *Senna* spp. and *Eremophila* spp. low shrubland. Occurs on dissected, gravelly Tertiary sand sheets. Hard-setting red earth soils. Not a Wetland. (BVG1M: 23b).

4.5.3x1: *Acacia aneura* low woodland, commonly with *Corymbia terminalis*, *Acacia* spp., *Atalaya hemiglauc*a, *C. aparrerinja* and *Grevillea striata*. The ground layer is sparse, including *Triodia* spp. and tussock grasses. Occurs on broad, residual Tertiary sand sheets. Deep red sands. Not a Wetland. (BVG1M: 23a).

4.5.3x1a: *Acacia aneura* low woodland, commonly with *Corymbia terminalis*, *A. excelsa* subsp. *angusta*, *C. aparrerinja* and *Grevillea striata*. The ground layer is patchy, including *Triodia* spp. and tussock grasses. Occurs on broad, residual Tertiary sand sheets. Deep red sands. Not a Wetland. (BVG1M: 23a).

4.5.3x1b: *Acacia aneura* tall open shrubland, commonly with *A. georginae*. *Corymbia terminalis* and *Atalaya hemiglauc*a may occur in the canopy. The ground layer is sparse, with tussock and hummock grasses. Occurs on broad, residual Tertiary sand sheets, often overlying Cambrian limestones. Red sands. Not a Wetland. (BVG1M: 23a).

4.5.3x2: *Eulalia aurea*, *Aristida* sp. tussock grassland, commonly with annual grasses and forbs. Occurs on broad, Tertiary sand sheets. Red sands. Not a Wetland. (BVG1M: 30b).

4.5.3x70: *Acacia aneura* and/or *A. cambagei* low open woodland, occasionally with *E. georginae*. Emergent *Corymbia terminalis* may occur. A variable shrub layer may occur, including *Senna* spp., *Eremophila* spp. and *Acacia* spp. The ground layer is patchy with *Triodia* spp. and tussock grasses. Occurs on silcrete rises and lateritic plateau residuals derived from deeply weathered Cretaceous mudstones. Skeletal soils. Not a Wetland. (BVG1M: 23b).

Short description: *Acacia aneura*, *Triodia brizoides* or *Triodia molesta* tall open shrubland on Tertiary sand sheets

Supplementary descriptions: Mills (1980), M3; Wilson and Purdie (1990a), H1 (14); Neldner (1991), 24a (9).

Subregions: 1, 2, (1.3), (7), (1.1), (3)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values: 4.5.3: Potential habitat for threatened fauna species including night parrot *Pezoporus occidentalis*.

Comments:

Estimated extent:¹ Pre-clearing 235000 ha; Remnant 2021 235000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.5.4

Description: *Heliodendron basalticum* and/or *Acacia aneura* low woodland. Other common tree species include *Grevillea striata*, *Atalaya hemiglauc*, *Flindersia maculosa*. Emergent *Corymbia terminalis* commonly occurs. Scattered shrubs are usually present but rarely form a well-defined layer. The ground layer is open and usually dominated by tussock or hummock grasses, with forbs being frequent. Occurs on flat to gently sloping, Quaternary sand sheets overlying Tertiary and Cretaceous sediments. Soils moderately sandy red earths, deep, sandy texture contrast soils and some minor sandy light clays. Not a Wetland. (BVG1M: 23a).

Vegetation communities in this regional ecosystem include:

4.5.4a: [RE not in use]²: This vegetation community is now mapped as 4.5.4. *Acacia aneura* dominated low open woodland. Occurs of flat to gently undulating sandplains. Not a Wetland. (BVG1M: 23b).

Short description: *Heliodendron basalticum* and/or *Acacia aneura* +/- *Corymbia terminalis* low woodland on sand sheets

Supplementary descriptions: Mills (1980), S2 (6); Neldner (1991), 13 (2); Turner et al. (1993), S1, S2 (52)

Subregions: 4, 5, (5.4), (5.5)

Protected areas: Lochern NP, Bladensburg NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.5.4: Potentially supports a high floristic and faunal diversity.

Comments: 4.5.4: Mainly occurs on plains adjacent to the Thomson River. Vegetation community 4.5.4a has been amalgamated into this regional ecosystem. Ground layer highly modified due to total grazing pressure and extensive invasion by buffel grass **Cenchrus ciliaris*. Density of *Acacia aneura* reduced in some areas by cutting for drought feeding and regular burning to promote new grass growth.

Estimated extent:¹ Pre-clearing 110000 ha; Remnant 2021 98000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes: Threatening processes other than clearing.

Regional ecosystem 4.5.5

Description: *Corymbia terminalis* and/or *C. aparrerinja* low open woodland. A shrub layer commonly occurs, dominated by *Grevillea wickhamii*, *Acacia acradenia*, *A. adsurgens*, *Senna notabilis*, *C. pruinosa*, *Gossypium australe* and *Seringia nephrosperma*. The ground layer is typically dominated by *Triodia pungens*. A variety of herbs occur in the ground stratum between spinifex hummocks. The perennial grass *Aristida holathera* var. *holathera*, *Cymbopogon obtectus*, *Eriachne mucronata* and *Paraneurachne muelleri* occur frequently, while *Amphipogon carcinus* may be locally common. The perennial forbs *Hibiscus sturtii* and *Sida* sp. (Musselbrook M.B.Thomas+MRS437) are also frequently present. Forbs such as *Tephrosia brachycarpa*, and shrubs such as *Senna notabilis*, are usually abundant in recently burnt areas. Occurs most extensively on sand sheets on tops of dissected tablelands and plateaus. Soils deep sandy red earths on sandplains, and shallower, loamy red earths to lithosols. Not a Wetland. (BVG1M: 19b).

Vegetation communities in this regional ecosystem include:

4.5.5a: *Corymbia terminalis*, *C. aparrerinja* low open woodland, commonly with *Grevillea striata*, *Acacia aneura* and *A. cambagei*. Scattered shrubs may occur. The ground layer is commonly dominated by *Triodia pungens*. Occurs on broad, residual Tertiary sand sheets. Deep red sands. Not a Wetland. (BVG1M: 19b).

4.5.5b: *Corymbia aparrerinja*, *C. terminalis* low open woodland. A shrub layer may occur, including *Acacia chisholmii* and *Hakea lorea*. The ground layer is dominated by *Triodia pungens*. Occurs on sandy, Tertiary residual deposits overlying Cambrian limestones. Red sands. Not a Wetland. (BVG1M: 19b).

4.5.5c: Mixed open woodlands, including combinations of the species *Corymbia terminalis*, *C. aparrerinja*, *Atalaya hemiglauc*, *Acacia cambagei*, *Grevillea striata* and *Hakea chordophylla*. The ground layer is tussock grasses. Occurs on Tertiary sand deposits, commonly overlying broad clay plains. Red sands and sandy loams. Not a Wetland. (BVG1M: 19b).

4.5.5x1: Mixed low open woodland, including combinations of the species *Corymbia terminalis*, *C. aparrerinja*, *Acacia cambagei*, *Atalaya hemiglauc*, *Grevillea striata* and *Ventilago viminalis*. *Acacia georginae*, *Lysiphyllum gilvum* and *Hakea chordophylla* may occur in the canopy. A sparse shrub layer may occur. The ground layer is tussock grasses. Occurs on level to undulating, early Quaternary sand deposits and abandoned levees, above active flood levels. Red sands and loams, commonly gravelly. Not a Wetland. (BVG1M: 19b).

4.5.5x2: *Ventilago viminalis* low open woodland, occasionally with *Atalaya hemiglauc*, *Eucalyptus pruinosa*, *Erythrina vespertilio*. The ground layer is sparse tussock grasses. Occurs on sandy outwash deposits around the western edges of the Northwest Highlands bioregion. Not a Wetland. (BVG1M: 19b).

4.5.5x60: Mixed low open woodland, including combinations of the species *Corymbia aparrerinja*, *C. terminalis*, *Grevillea striata* and *Atalaya hemiglauc*. *Acacia cambagei* and *Ventilago viminalis* may occur in the canopy. A shrub layer commonly occurs, including *Acacia* spp., *Senna* spp. and *Eremophila* spp. The ground layer is tussock grasses, commonly *Aristida holathera* var. *holathera* and *Eragrostis* spp. Occurs on inland sand dunes. Deep red sands. Not a Wetland. (BVG1M: 19b).

Short description:	<i>Corymbia terminalis</i> and/or <i>C. aparrerinja</i> , <i>Triodia pungens</i> +/- <i>Acacia</i> spp., <i>Senna</i> spp., <i>Eucalyptus</i> spp. Low open woodland on sand sheets
Supplementary descriptions:	Neldner (1991), 19a (42); Wilson and Purdie (1990a), M1 (15 - eastern), R1 (23),
Subregions:	1, 2, 1.1, 7, 3, 5, (1.3), (5.3), (4)
Protected areas:	
Extent in reserves:	No representation
Wetland:	Not a Wetland
Special values:	
Comments:	4.5.5: Forbs increase for short time after fire (Neldner, 1991). Occurs in the west of the bioregion on the edges of the Barkly Tableland. Density of shrub species and <i>Triodia pungens</i> cover dependent on fire frequency. 4.5.5a: 4.5.8b has been amalgamated into this vegetation community. 4.5.5x1: 4.5.8b has been amalgamated into this RE. 4.5.5x2: Forbs increase for short time after fire (Neldner, 1991). Occurs in the west of the bioregion on the edges of the Barkly Tableland. Density of shrub species and <i>Triodia pungens</i> cover dependent on fire frequency. 4.5.5x60: Occurs sporadically in the west of bioregion.
Estimated extent: ¹	Pre-clearing 159000 ha; Remnant 2021 157000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.5.6

Description: *Acacia cambagei* tall open shrubland. A number of *Senna* spp. and *Eremophila* spp. are present, and form a distinct, open, low shrub layer (1-1.5m tall) in places. The ground layer is open and dominated by the forbs *Sida platycalyx* and *Sclerolaena cornishiana*, and tussock grasses *Aristida holathera* var. *holathera* and *Eragrostis eriopoda*. Occurs on Quaternary sand sheets. Associated soils are moderately deep to deep texture contrast soils and some earthy sands. Hard setting surfaces are common. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.5.6x1: Mixed low open woodland, with a combination of the species *Atalaya hemiglaucula*, *Corymbia terminalis*, *Acacia cambagei*, *Corymbia aparrerinja*, *Grevillea striata*, *Eucalyptus leucophylla* and *Acacia aneura*. The ground layer is patchy tussock grasses. Occurs on outwash plains and residual sand sheets, commonly overlying Tertiary clay deposits. Red-brown loamy soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 27b).

4.5.6x2: *Acacia georginae* and/or *Acacia cambagei* tall open shrubland to low open woodland, occasionally with *Atalaya hemiglaucula*, *Corymbia terminalis*, *Eucalyptus leucophylla* and *Grevillea striata*. A shrub layer of *Acacia georginae* and/or *Acacia cambagei* may occur. The ground layer is sparse tussock grasses. Occurs on sandy and loamy Tertiary outwash and residual sand deposits. Red-brown loams and clay loams, commonly with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.5.6x2a: *Acacia cambagei* low open woodland, occasionally with *Atalaya hemiglaucula*, *Corymbia terminalis*, *Eucalyptus leucophylla* and *Grevillea striata*. *Acacia cambagei* shrubs may occur. A shrub layer of *Acacia georginae* and/or *Acacia cambagei* may occur. The ground layer is sparse tussock grasses. Occurs on sandy and loamy Tertiary outwash deposits. Red-brown loamy soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.5.6x2b: *Acacia georginae* and/or *Acacia cambagei* tall open shrubland, occasionally with *Atalaya hemiglaucula* and *Corymbia terminalis*. The ground layer is sparse tussock grasses. Occurs on Tertiary residual sand deposits, commonly dissected by current drainage lines. Red-brown loamy soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.5.6x2c: *Acacia georginae* and/or *Acacia cambagei* tall open shrubland, occasionally with *Atalaya hemiglaucula* and *Corymbia terminalis*. A shrub layer of *Acacia georginae* and/or *Acacia cambagei* may occur. The ground layer is sparse tussock grasses. Occurs on broad, Tertiary sand sheets, commonly at the margins of erosional surfaces and clay plains. Red-brown loamy soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.5.6x2d: *Acacia cambagei* low open woodland to low woodland. Isolated *A. cambagei* shrubs may occur. A variable ground layer occurs, including *Sclerolaena* spp., *Trianthema triquetra* and annual grasses. Occurs on gravelly residuals formed from reworked deposits of eroded lateritic material. Ferruginous gravel and cobble lag commonly occurs. Not a Wetland. (BVG1M: 26a).

4.5.6x4: *Acacia cambagei* low open woodland to low woodland, occasionally with *A. aneura*. *A. cambagei* shrubs may occur. The ground layer is commonly sparse, annual tussock grasses. Occurs on Quaternary sand sheets formed from outwash around the Winton Plateau (CHC). Red loamy soils with gravel lag on the surface. Not a Wetland. (BVG1M: 26a).

4.5.6x5: *Eucalyptus microtheca* low open woodland. The ground layer is perennial tussock grasses. Occurs on sandy outwash deposits overlying Tertiary clay plains. Not a Wetland. (BVG1M: 18c).

Short description:	<i>Acacia cambagei</i> , <i>Senna</i> spp., <i>Sida platycalyx</i> tall open shrubland on Quaternary sand sheets
Supplementary descriptions:	Mills (1980), S5 (93); Neldner (1991), 26c (25); Turner et al. (1978), S1 (86); Purdie and Wilson (1990), LU 73
Subregions:	2, 7, 1, 1.3, 5, 4, (1.1), (3), (6), (5.3), (5.2), (5.4)
Protected areas:	Bladensburg NP, Wiliyan-ngurru NP
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	
Comments:	4.5.6: Occurs east of about 139o longitude. 4.5.6x2d: Occurs east of about 139o longitude. 4.5.6x4: Occurs east of about 139o longitude. 4.5.6x5: Was previously mapped as 4.4.1x2. Barkly Tableland.
Estimated extent: ¹	Pre-clearing 135000 ha; Remnant 2021 129000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.5.7

Description: *Acacia georginae* (or *A. cambagei*) tall open shrubland. A number of *Senna* spp. and *Eremophila* spp. are present, and form a distinct, open, low shrub layer (1-1.5m tall) in places. The ground layer is open and dominated by the forbs *Sida platycalyx* and *Sclerolaena cornishiana*, and tussock grasses *Aristida holathera* var. *holathera* and *Eragrostis eriopoda*. Occurs on flat Quaternary sandplains. Soils deep, sandy red earths and sandy surfaced texture contrast soils. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.5.7a: *Acacia cambagei* and/or *A. georginae* tall open shrubland to low open woodland, occasionally with *Corymbia terminalis* and *Atalaya hemiglauca*. A shrub layer may occur, including *Acacia* spp., *Senna* spp. and *Eremophila* spp. The ground layer is tussock grasses. Occurs on level to undulating early Quaternary sand deposits, above active flood levels. Red sands and loams, commonly gravelly. Not a Wetland. (BVG1M: 26a).

4.5.7b: *Acacia cambagei* low open woodland, occasionally with *Corymbia terminalis*, *Atalaya hemiglauca*. A shrub layer of *Acacia cambagei* may occur. The ground layer is tussock grasses. Occurs on broad, level, early Quaternary sand deposits (abandoned levees), above active flood levels. Red sands, occasionally gravelly. Not a Wetland. (BVG1M: 26a).

Short description: *Acacia georginae* (or *A. cambagei*), *Sida platycalyx*, *Sclerolaena cornishiana* tall open shrubland on Quaternary sand sheets

Supplementary descriptions: Neldner (1991), 28a (25); Wilson and Purdie (1990a), S2 (10)

Subregions: 7, 1.1, 3, 1.3, (1), (2)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments:

Estimated extent:¹ Pre-clearing 52000 ha; Remnant 2021 52000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.5.8

Description: *Triodia pungens* hummock grassland. Emergent shrubs may occur, typically including *Eremophila obovata*, *Acacia melleodora*, *A. ligulata*, *A. coriacea*, *A. cowleana*, *Acacia adsurgens*, *A. ancistrocarpa* and *Grevillea juncifolia*. *Codonocarpus cotinifolius*, *Seringia nephrosperma*, *Commersonia loxophylla* and *Streptoglossa macrocephala* may occur. The ground between the grass hummocks and shrubs supports a variety of perennial and ephemeral herbs. Frequent species include *Aristida holathera* var. *holathera*, *A. ingrata* and *Schizachyrium perplexum* and the forbs *Goodenia triodiophila*, *Sida cardiophylla*, *S. filiformis* and *Stackhousia viminea*. In local areas, *Acacia adsurgens*, *A. ancistrocarpa* and *A. cowleana* may form tall shrublands with a *T. pungens* ground layer. Occurs on flat, aeolian sand sheets. Soils are deep to very deep sandy red earths and associated red earthy sands. Soils have a slight acid to medium acid, hard setting surface often with a crust. Soils become strong alkaline at depth with soft lime present. Structure maybe weakly developed at depth. Not a Wetland. (BVG1M: 33b).

Vegetation communities in this regional ecosystem include:

4.5.8a: *Triodia pungens* dominates the ground layer forming a hummock grassland (<0.7m high). Scattered low shrubs such as *Senna artemisioides*, *Crotalaria eremaea*, *Acacia ligulata* and *A. coriacea* are frequent present. The ground cover between the hummocks and shrubs is sparse and dominated by short-lobed perennial and ephemeral herbs. The grass *Aristida holathera* var. *holathera* and forb *Rutidosis helichrysoides* and *Synaptantha tillaeacea* occur most frequently. Occurs quaternary sandsheets. Not a Wetland. (BVG1M: 33b).

4.5.8b: [RE not in use]²: This vegetation community is now mapped as 4.3.10b, 4.5.5a and 4.5.5x1. *Corymbia terminalis*, *Triodia pungens* +/- *Acacia* spp., *Senna* spp., *Eucalyptus* spp. low open woodland on sandplains. Occurs on quaternary sandsheets. Not a Wetland. (BVG1M: 18b).

4.5.8x1: Mixed open tussock grassland, including combinations of the species *Eragrostis xerophila*, *Iseilema* spp., *Aristida latifolia*, *Panicum* spp., *Dactyloctenium radulans*, *Eulalia aurea* and *Astrebla pectinata*. Emergent *Acacia cambagei*, *Acacia georginae*, *Atalaya hemiglauca* and *Acacia victoriae* may occur. Occurs on broad, level early Quaternary sand deposits, above active flood levels. Red, gravelly sands and loams. Not a Wetland. (BVG1M: 31a).

4.5.8x2: Mixed open tussock grassland, with a combination of the species *Aristida contorta*, *Eragrostis setifolia*, *Eriachne pulchella*, *Brachyachne convergens* and *Iseilema vaginiflorum*. Other species include *Astrebla pectinata*, *Dactyloctenium radulans*, *Trianthema triquetra*, *Portulaca* spp. and *Sclerolaena* spp. Occurs on Tertiary deposits of gravel and eroded lateritic material, primarily in the west of the bioregion. Not a Wetland. (BVG1M: 31b).

4.5.8x60: *Triodia basedowii* hummock grassland. Emergent *Eremophila obovata*, *Crotalaria eremaea* and *E. macdonnellii* may occur. Occurs on isolated patches of Quaternary dunefield. Deep red sands. Not a Wetland. (BVG1M: 33b).

Short description:	<i>Triodia pungens</i> hummock grassland wooded with <i>Acacia</i> spp. +/- <i>Eucalyptus</i> spp. on Quaternary aeolian sand sheets
Supplementary descriptions:	Wilson and Purdie (1990a), S1 (LU 8); Neldner (1991), 40 (51)
Subregions:	3, 2, 5, 1, 7, (1.1), (5.3), (5.4), (1.3), (5.5), (5.2), (2.3)
Protected areas:	Diamantina NP, Bladensburg NP, Wiliyan-ngurru NP, Combo CP 2
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	4.5.8: Potential habitat for threatened fauna species including <i>Pictorella mannikin</i> , <i>Heteromunia pectoralis</i> . 4.5.8x60: Potential habitat for threatened fauna species including <i>Pictorella mannikin</i> , <i>Heteromunia pectoralis</i> .
Comments:	4.5.8: Fire frequency can affect density of woody species and <i>Triodia pungens</i> . 4.5.8x60: Fire frequency can affect density of woody species and <i>Triodia pungens</i> .
Estimated extent: ¹	Pre-clearing 608000 ha; Remnant 2021 606000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.5.9

Description: Mixed open woodland, including combinations of the species *Heliodendron basalticum*, *Atalaya hemiglauc*, *Acacia cambagei*, *Eremophila mitchellii*, *Ventilago viminalis* and commonly with emergent *Eucalyptus populnea* and/or *Corymbia tessellaris*. There is usually a well-developed low shrub layer dominated by species such as *Acacia excelsa*, *Capparis anomala*, *Capparis lasiantha*, *Carissa ovata* and *Denhamia oleaster*. The ground layer is generally sparse and dominated by grasses such as *Aristida holathera* var. *holathera*, *A. jerichoensis*, *Enteropogon acicularis*. Occurs on Quaternary sand sheets (old levee material) overlying recent alluvium. Associated soils are usually very deep, texture contrast usually with coarse sand to course sandy loam surfaces and sometimes deep to very deep uniform sandy soils. Not a Wetland. (BVG1M: 26a).

Short description: *Acacia cambagei*, *Heliodendron basalticum* and mixed species open woodland on Quaternary sand sheets

Supplementary descriptions: Mills (1980), S5 (92); Turner et al. (1978), S1 (85)

Subregions: 4, 5, (10.4), (11.26)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values: 4.5.9: Ecosystem with high floristic diversity.

Comments: 4.5.9: Ground layer has been extensively invaded by buffel grass **Cenchrus ciliaris*.

Estimated extent:¹ Pre-clearing 27000 ha; Remnant 2021 17000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes: Threatening processes other than clearing.

Regional ecosystem 4.7.1

Description: *Acacia shirleyi* low woodland to open scrub. A variable shrub layer may occur, including *Eremophila latrobei*, *Indigofera leucotricha* and *Acacia* spp. Emergent *Eucalyptus thozetiana* may occur. The ground stratum variable, with short grasses and hummock grasses. Occurs on scarp retreats and adjacent margins of dissected lateritic plateaus on a range of slopes (flat to vertical). Soils very shallow, acid, loamy lithosols with weathered with weathered rock exposed. Not a Wetland. (BVG1M: 24a).

Vegetation communities in this regional ecosystem include:

4.7.1a: *Acacia shirleyi* low open woodland occasionally with *Eucalyptus* spp. The ground layer is *Triodia* spp. Occurs on residuals of deeply weathered Tertiary lacustrine mudstone and limestone (Old Cork Beds). Not a Wetland. (BVG1M: 24a).

4.7.1b: *Acacia cyperophylla* low woodland. The ground layer is dominated by *Triodia* spp. Occurs on rises and breakaways on deeply weathered Cretaceous siltstones and mudstones. Not a Wetland. (BVG1M: 24a).

Short description: *Acacia shirleyi* +/- *Eucalyptus* spp. low woodland on scarps and margins of lateritic plateaus

Supplementary descriptions: Neldner (1991), 6 (27); Wilson and Purdie (1990a), R1 (20)

Subregions: 3, 2, (4), (5), (5.2), (10.1)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values: 4.7.1: Regional ecosystems of high reptile species diversity.

4.7.1a: Vegetation community of high reptile species diversity.

4.7.1b: Vegetation community of high reptile species diversity.

Comments:

Estimated extent:¹ Pre-clearing 293000 ha; Remnant 2021 293000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.7.2

Description: *Eucalyptus normantonensis* low open woodland to low woodland with a hummock grass ground layer, dominated by *Triodia molesta* on upper slopes, and by *T. brizoides* or *T. longiceps* on lower slopes. In some areas *Acacia ancistrocarpa*, *A. ligulata*, *A. cowleana* and *A. dictyophleba* shrub may be prominent. A variety of other shrubs, including *Acacia* spp., *Capparis* spp., *Cassia* spp., *Eremophila* spp., and *Maireana* spp. occur infrequently. The ground cover between the shrubs and grass hummocks is usually sparse, with grasses such *Aristida* spp. and *Paspalidium* spp. and forbs, including a number from the *Chenopodiaceae*, occurring infrequently. Occurs on plateau margins and detrital slopes of dissected lateritic plateaus, mesas and buttes formed mainly from deeply weathered Cretaceous sediments. Soils very shallow, gravely, loamy lithosols with lateritic gravel and rock. Not a Wetland. (BVG1M: 19d).

Vegetation communities in this regional ecosystem include:

4.7.2x1: *Triodia* spp. hummock grassland. Emergent *Eucalyptus leucophloia*, *Acacia shirleyi*, *A. cambagei* and *E. normantonensis* commonly occur. *Corymbia aparrerinja*, *C. terminalis* and *A. aneura* may occur as emergents. *Acacia* sp. shrubs may occur. Includes small areas with little to no vegetation. Occurs on Tertiary lateritic plateaus and residuals derived from deeply weathered Mesozoic sediments and Cambrian shales. Skeletal soils. Not a Wetland. (BVG1M: 33b).

4.7.2x1a: *Triodia* spp. hummock grassland. Emergent *Eucalyptus leucophloia*, *Acacia shirleyi*, *A. cambagei* and *E. normantonensis* commonly occur. Includes small areas with little to no vegetation. Occurs on eroding surfaces and edges of Tertiary lateritic plateaus derived from deeply weathered Mesozoic sediments. Skeletal soils. Not a Wetland. (BVG1M: 33b).

4.7.2x1b: *Triodia* spp. hummock grassland. Emergent *Eucalyptus leucophloia*, *Acacia cambagei*, *Corymbia aparrerinja*, *C. terminalis* and *A. aneura* may occur. *Acacia* sp. shrubs may occur. Includes small areas with little to no vegetation. Occurs on Tertiary lateritic residuals derived from deeply weathered Cambrian shales, commonly overlying limestones. Skeletal soils. Not a Wetland. (BVG1M: 33b).

4.7.2x1c: *Triodia* spp. hummock grassland. Emergent *Eucalyptus leucophloia*, *A. aneura*, *Acacia cambagei* and *E. normantonensis* may occur. Scattered shrubs may occur. Occurs on narrow, intact surfaces of lateritic plateaus, derived from deeply weathered Cretaceous mudstones. Skeletal soils. Not a Wetland. (BVG1M: 33b).

4.7.2x2: Variable mosaic of communities, frequently dominated by areas of bare rock. Includes areas of *Astrebla* spp., *Triodia* spp. and sparse tussock grasses and forbs. Scattered *Atalaya hemiglaucula*, *Acacia aneura* and *Acacia cambagei* may occur. Includes small areas of *Atalaya hemiglaucula* low open woodland and *Senna* spp. and *Eremophila* spp. low shrubland. Occurs on degraded residuals (commonly mottled/pallid zones) of Tertiary lateritic plateaus formed from lateritised Cretaceous sediments. Not a Wetland. (BVG1M: 19d).

4.7.2x4: *Triodia longiceps* hummock grassland. Other species include *Sporobolus* spp., *Streptoglossa odora* and *Ptilotus* spp. Emergent *Acacia bivenosa*, *Senna* spp. and *Eremophila* spp. may occur. Occurs on silcrete-topped Tertiary limestone rises (Old Cork Beds). Skeletal soils. Not a Wetland. (BVG1M: 33b).

Short description: *Eucalyptus normantonensis* low open woodland with *Triodia* spp. on lateritic plateau margins and slopes

Supplementary descriptions: Neldner (1991), 30a (38); Wilson and Purdie (1990a), R1, R4 (22)

Subregions: 3, 1, 2, 1.3, (5), (7), (5.5), (1.1), (4), (5.4), (5.2)

Protected areas: Bladensburg NP, Diamantina NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.7.2: High reptile species diversity. Potential habitat for night parrot *Pezoporus occidentalis*.
4.7.2x2: High reptile species diversity. Potential habitat for night parrot *Pezoporus occidentalis*.

Comments: 4.7.2: Requires a fire management program of mosaic patch burning.
4.7.2x2: Requires a fire management program of mosaic patch burning.
4.7.2x4: Previously mapped as part of 4.7.2x1.

Estimated extent:¹ Pre-clearing 469000 ha; Remnant 2021 468000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.7.3

Description: Heliodendron basalticum and Acacia aneura low open woodland to tall shrubland. Atalaya hemiglauca and Flindersia maculosa may occur in the canopy. A shrub layer may occur, including Eremophila latrobei and Indigofera leucotricha. The ground layer includes Eriachne mucronata, Aristida spp., Enneapogon spp. and areas of Triodia pungens. Occurs on flat to gently undulating tops of mesas and buttes formed from Tertiary sediments (lateritised Glendower Formation) which are often deeply weathered. Associated soils are generally lithosols with a dense surface cover of ironstone gravel. Not a Wetland. (BVG1M: 23b).

Short description: Heliodendron basalticum, Acacia aneura low open woodland on lateritised Tertiary sediments

Supplementary descriptions: Turner et al. (1993), R4 (70)

Subregions: 5, 4, (10.1)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments: 4.7.3: Associated with eastern scattered parts of RE 4.7.1.

Estimated extent:¹ Pre-clearing 10000 ha; Remnant 2021 7000 ha

VM class: Of concern

Biodiversity status: Of concern

Biodiversity status notes:

Regional ecosystem 4.7.4

Description: *Acacia cambagei* tall open shrubland to woodland, with scattered *Capparis anomala* shrubs present frequently and *Senna artemisioides* subsp. *Oligophylla* and/or *S. phyllodinea* shrubs locally prominent. Scattered *Cassia* spp., *Eremophila* spp. And *Hemichroa mesembryanthema* shrubs occurs infrequently. The ground stratum is sparse to open and usually dominated by *Triodia brizoides*, *T. longiceps*, or in some areas *T. pungens*. The perennial grass *Enteropogon acicularis* and short-lived *Dactyloctenium radulans* and *Enneapogon polyphyllus* occur frequently, while *Aristida latifolia* may be locally common. A variety of other ephemeral grasses, including *Enneapogon* spp. And *Sporobolus* spp., and forbs, including many species from the *Chenopodiaceae*, occur infrequently but maybe seasonally important. Occurs on lower slopes of scarp retreat zones formed from lateritised Cretaceous mudstones with a dense surface ironstone or lateritic gravel cover derived from weathered Tertiary land surface. Soils mainly very shallow to shallow, stony red clays with minor desert loams. Lithosols occurs adjacent to the scarp minor cracking clays occurs lower in the landscape. Ironstone and lateritic gravel occur throughout the profile and on the surface. Surfaces are usually crusty. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.7.4a: *Acacia cambagei* low woodland, occasionally with *A. aneura*. *A. cambagei* shrubs commonly occur. The ground layer is sparse, with *Triodia* spp. and tussock grasses. Occurs around the margins of Tertiary lateritic plateaus of deeply weathered Cretaceous mudstones. Skeletal soils. Not a Wetland. (BVG1M: 26a).

4.7.4b: *Acacia cambagei* and/or *A. georginae* tall open shrubland to low open woodland, occasionally with *A. aneura*. *A. cambagei* and/or *A. georginae* may occur as shrubs. The ground layer is commonly *Triodia* spp. Occurs around the margins of Tertiary lateritic surfaces of deeply weathered Cambrian shales. Skeletal soils. Not a Wetland. (BVG1M: 26a).

4.7.4c: Mixed low open woodland, including combinations of the species *A. cambagei*, *A. shirleyi* and *A. cyperophylla*. The ground layer is dominated by *Triodia* spp. Occurs on rises and breakaways on deeply weathered Cretaceous siltstones and mudstones. Not a Wetland. (BVG1M: 26a).

4.7.4d: *Acacia cambagei* low open woodland. The ground layer is mostly bare with sparse tussock grasses. Occurs on broken siliceous and chalcedony residuals of deeply weathered Tertiary lacustrine mudstone and limestone (Old Cork Beds). Not a Wetland. (BVG1M: 26a).

4.7.4e: *Acacia cambagei* woodland, occasionally with *Flindersia maculosa*, *Atalaya hemiglaucula*, *Acacia shirleyi* and *Heliodendron basalticum*. *Acacia cambagei* shrubs may occur. The ground layer is sparse tussock grasses and forbs. Occurs on eroding margins of lateritic plateaus in the north-east of the bioregion (often adjacent the Desert Uplands). Not a Wetland. (BVG1M: 26a).

Short description: *Acacia cambagei* tall open shrubland with *Triodia* spp. +/- *Senna* spp. near eroding edges of Tertiary plateaus

Supplementary descriptions: Neldner (1991), 8a (19); Turner et al. (1993), T1; Wilson and Purdie (1990a), T1 (LU 36)

Subregions: 3, 5, 2, 4, (1.3), (6), (5.5), (10.1), (7), (5.4), (2.8), (9.5)

Protected areas: Diamantina NP, Bladensburg NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.7.4: Potential habitat for NCA listed species: *Eremophila tetraptera*.

Comments: 4.7.4: Some clearing is occurring.
4.7.4c: Some clearing is occurring.
4.7.4d: Some clearing is occurring.
4.7.4e: Some clearing is occurring.

Estimated extent:¹ Pre-clearing 334000 ha; Remnant 2021 323000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.7.6

Description: *Acacia chisholmii* open shrubland. Other *Acacia* spp. and/or scattered *Eucalyptus* spp. may be present. The ground layer is dominated by *Triodia* spp. Occurs on scarp retreats and adjacent tops of dissected lateritic plateaus. Not a Wetland. (BVG1M: 19b).

Vegetation communities in this regional ecosystem include:

4.7.6a: Mixed shrubland, with combinations of *Acacia* spp., *Senna* spp. and *Eremophila* spp. Emergent *Acacia aneura*, *Acacia cambagei*, *Atalaya hemiglaucula* and *Corymbia terminalis* may occur. The ground layer is commonly dominated by *Triodia* spp. Occurs on lateritic residuals derived from deeply weathered Cretaceous mudstones. Skeletal soils. Not a Wetland. (BVG1M: 23b).

4.7.6x1: *Acacia aneura* and/or *Acacia sibirica* tall open shrubland, commonly with *Senna* spp. and *Eremophila* spp. Other *Acacia* spp., *Atalaya hemiglaucula*, *Eucalyptus normantonensis* and lower shrubs may occur. Occurs on rises and low hills of deeply weathered Cretaceous and Tertiary sediments. Not a Wetland. (BVG1M: 19b).

4.7.6x1a: *Acacia aneura* and/or *A. sibirica* and/or *A. clivicola* tall open shrubland to low open woodland, commonly with *Senna* spp. and *Eremophila* spp. *Acacia shirleyi*, *Atalaya hemiglaucula* and *Acacia cambagei* and lower shrubs may occur. Occurs on rises and low hills of deeply weathered Cretaceous mudstones. Not a Wetland. (BVG1M: 19b).

4.7.6x1b: *Acacia aneura* tall open shrubland, occasionally with *A. cambagei* and *A. cyperophylla*. A variable shrub layer commonly occurs, with several *Acacia* spp., *Senna* spp. and *Eremophila* spp.. Small patches of *Eucalyptus normantonensis* occur. The ground layer is dominated by *Triodia* spp. Occurs on eroding edges of lateritised Tertiary sandstone (Mueller Formation). Not a Wetland. (BVG1M: 19b).

4.7.6x2: [RE not in use]²: This regional ecosystem is now mapped as 4.7.6x1b. *Acacia aneura* low open woodland, occasionally with *A. cambagei* and *A. cyperophylla*. A variable shrub layer commonly occurs, with several *Acacia* spp., *Senna* spp. and *Eremophila* spp.. Small patches of *Eucalyptus normantonensis* occur. The ground layer is dominated by *Triodia* spp. Occurs on eroding edges of lateritised Tertiary sandstone (Mueller Formation). Not a Wetland. (BVG1M: 19b).

Short description: *Acacia chisholmii* open shrubland on lateritic scarps and plateau margins

Supplementary descriptions: Neldner (1991), 31a

Subregions: 1, 2, 3, (4), (5), (1.3), (5.3)

Protected areas: Diamantina NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values:

Comments: 4.7.6x1b: Was previously mapped as 4.7.6x2.

Estimated extent:¹ Pre-clearing 145000 ha; Remnant 2021 144000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.7.7

Description: *Eucalyptus leucophylla* low open woodland, commonly with *Corymbia terminalis* and a ground layer dominated by *Triodia* spp. Occurs on scarp retreats and adjacent margins of dissected lateritic plateaus on a range of slopes (flat to vertical). Soils very shallow, acid, loamy lithosols with weathered with weathered rock exposed. Not a Wetland. (BVG1M: 19b).

Vegetation communities in this regional ecosystem include:

4.7.7a: Mixed low open woodland, with combinations of the species *Acacia aneura*, *Eucalyptus leucophylla*, *Corymbia terminalis*, *C. aparrerinja*, *Atalaya hemiglauc*a, *Grevillea striata*, *Hakea chordophylla*, *E. leucophloia*. A shrub layer of *Acacia chisholmii* and *A. ancistrocarpa* may occur. The ground layer is commonly dominated by *Triodia* spp. Occurs on low, Tertiary lateritic residuals. Surface lag gravel common. Shallow red earths. Not a Wetland. (BVG1M: 19b).

4.7.7b: Mixed low open woodland, with a combination of the species *Eucalyptus leucophloia*, *Corymbia aparrerinja*, *C. terminalis*, *E. odontocarpa*, *Acacia aneura* and *E. pruinosa*. Occasional canopy species include *E. gamophylla* and *Hakea chordophylla*. A variable shrub layer commonly occurs, including *Acacia* spp., *Grevillea* spp. and *Eremophila* spp. The ground layer is commonly dominated by *Triodia* spp. Occurs on rises and low hills of silcrete, derived from various deeply weathered sediments, including sandstones, conglomerates and shales. Not a Wetland. (BVG1M: 19b).

4.7.7c: [RE not in use]²: This vegetation community is now mapped as 4.7.7x1. *Eucalyptus leucophylla* +/- *Corymbia terminalis* low open woodland with a ground layer dominated by *Triodia* spp. Occurs on scarp retreats and adjacent tops of dissected tablelands on a range of slopes (flat to vertical). Soils very shallow, acid, loamy lithosols with weathered with weathered rock exposed. Not a Wetland. (BVG1M: 19b).

4.7.7x1: *Corymbia terminalis* and *Eucalyptus leucophylla* low open woodland. *Triodia longiceps* dominates the ground layer. Occurs on rises and breakaways of deeply weathered Cretaceous siltstones and mudstones. Not a Wetland. (BVG1M: 19b).

4.7.7x2: *Corymbia aparrerinja* low open woodland, occasionally with *Atalaya hemiglauc*a, *Acacia cyperophylla* and *Acacia cambagei*. Scattered *Senna* spp. and *Eremophila* spp. shrubs commonly occur. The ground layer is patchy, with tussock grasses and *Triodia pungens*. Includes areas of bare rock and sparse shrubs and tussock grasses. Occurs on breakaways and low hills of lateritised Cretaceous mudstones. Not a Wetland. (BVG1M: 12b).

Short description: *Eucalyptus leucophylla* +/- *Corymbia terminalis* +/- *Triodia* spp. low open woodland on scarps and margins of lateritic plateaus

Supplementary descriptions: Neldner (1991), 15a, 38a (50)

Subregions: 2, 1.3, 1.1, 3, (7), (1)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments: 4.7.7b: Was previously mapped as 4.7.
4.7.7x1: 4.7.7c has been amalgamated into this RE.
4.7.7x2: Occurs in scattered locations on the western side of the Burke River.

Estimated extent:¹ Pre-clearing 52000 ha; Remnant 2021 52000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.7.8

Description: *Eucalyptus leucophloia* low open woodland with a ground layer dominated by *Triodia* spp. Occurs on lateritic plateaus and residuals with shallow, gravelly loamy lithosol soils and frequent rock outcrops. Not a Wetland. (BVG1M: 19a).

Vegetation communities in this regional ecosystem include:

4.7.8a: *Eucalyptus leucophloia* low open woodland, occasionally with *Acacia cambagei*, *E. normantonensis* and *A. aneura*. *Acacia chisholmii* shrubs may occur. *Triodia* spp. commonly dominate the ground layer. Occurs on lateritic residuals and plateaus derived from deeply weathered Cretaceous mudstones. Skeletal soils. Not a Wetland. (BVG1M: 19a).

4.7.8b: *Eucalyptus leucophloia* low open woodland, occasionally with *Acacia cambagei* and *E. normantonensis*. *Acacia chisholmii* shrubs may occur. *Triodia* spp. commonly dominate the ground layer. Occurs on deeply weathered Cambrian shale residuals, commonly overlying limestones. Skeletal soils. Not a Wetland. (BVG1M: 19a).

4.7.8c: [RE not in use]²: This vegetation community is now mapped as 4.7.7b. *Eucalyptus leucophloia* and/or *E. normantonensis* and/or *E. odontocarpa* low open woodland, occasionally with *E. gamophylla*, *Corymbia terminalis* and *C. aparrerinja*. A sparse, mixed shrub layer may occur, including *Acacia* spp. and *Senna* spp. The ground layer is commonly dominated by *Triodia* spp. Occurs on rises and low hills of silcrete, derived from various deeply weathered sediments, including sandstones, conglomerates and shales. Not a Wetland. (BVG1M: 19a).

4.7.8x1: Mixed low open woodland, including combinations of the species *Corymbia aspera*, *Atalaya hemiglaucula*, *Ventilago viminalis* and *Psydrax oleifolia*. *Ehretia saligna*, *Corymbia terminalis* and *Grevillea striata* may occur in the canopy. Scattered shrubs may occur. The ground layer is commonly bare or with sparse tussock grasses and forbs. Occurs on flat tops and scarps of lateritised Tertiary sandstone and siltstone (Edkins Formation). Not a Wetland. (BVG1M: 19a).

Short description: *Eucalyptus leucophloia* low open woodland on lateritic plateaus and residuals

Supplementary descriptions: Neldner (1991) 16 (41), 39 (50 in part)

Subregions: 2, 3, 1, 1.3, (5), (7)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments:

Estimated extent:¹ Pre-clearing 192000 ha; Remnant 2021 191000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.1

Description: *Astrelia lappacea* tussock grassland, commonly with *Aristida latifolia* and *Panicum decompositum*. Sparsely scattered low shrubs and low trees may occur. Short-lived grasses such as *Iseilema* spp. and *Dichanthium* spp. and ephemeral forbs vary in abundance with seasonal conditions. Winter rain favours the forbs, while summer rainfall promotes the growth of grasses. Occurs on flat to gently undulating plains formed from fine grained Cretaceous sediments. Soils generally moderately deep to deep grey, brown and red cracking clays with self-mulching surface of high fertility. Not a Wetland. (BVG1M: 30b).

Vegetation communities in this regional ecosystem include:

4.9.1a: *Astrelia lappacea* tussock grassland to closed tussock grassland, commonly with *Aristida latifolia* and *Iseilema vaginiflorum*. Emergent *Atalaya hemiglaucula* and *Ventilago viminalis* may occur. Occurs on undulating plains formed from Cretaceous mudstones. Associated soils are generally shallow to deep, red clays and minor texture contrast soils with moderate to abundant amounts of ironstone and lateritic or siliceous gravel on the surface. Not a Wetland. (BVG1M: 30b).

4.9.1b: *Aristida* spp., *Enneapogon* spp. tussock grassland wooded with *Atalaya hemiglaucula* +/- *Ventilago viminalis*. Occurs on shallow low rises, limestone ridges on flat/gently undulating clay plains. Not a Wetland. (BVG1M: 30b).

4.9.1c: *Astrelia* spp., *Iseilema* spp. tussock grassland, commonly with *Panicum decompositum*, *Dichanthium* spp., *Eulalia aurea*, *Chrysopogon fallax*, *Sarga plumosum*. Emergent *Atalaya hemiglaucula* commonly occur. Occurs on level to gently undulating downs derived from Cretaceous mudstones (predominantly Allaru Mudstone) in the north of the bioregion. Not a Wetland. (BVG1M: 30b).

Short description:	<i>Astrelia lappacea</i> +/- <i>Aristida latifolia</i> +/- <i>Panicum decompositum</i> tussock grassland on Cretaceous sediments
Supplementary descriptions:	Mills (1980), F2-F7; Neldner (1991), 42a; Turner et al. (1993), F1, F3, F6, F7, F8; Wilson and Purdie (1990a), F1
Subregions:	5, (6), (4), (2.5), (3), (2.3), (9.5), (10.1), (2.8), (5.4)
Protected areas:	Bladensburg NP, Combo CP 2
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	4.9.1: Potential habitat for endemic fauna species including Spencer's goanna <i>Varanus spenceri</i> , and threatened fauna species including Julia Creek dunnart <i>Sminthopsis douglasi</i> , Collett's snake <i>Pseudechis colletti</i> and skink <i>Ctenotus schevilli</i> . 4.9.1b: Potential habitat for endemic fauna species including Spencer's goanna <i>Varanus spenceri</i> , and threatened fauna species including Julia Creek dunnart <i>Sminthopsis douglasi</i> , Collett's snake <i>Pseudechis colletti</i> and skink <i>Ctenotus schevilli</i> . 4.9.1c: Potential habitat for endemic fauna species including Spencer's goanna <i>Varanus spenceri</i> , and threatened fauna species including Julia Creek dunnart <i>Sminthopsis douglasi</i> , Collett's snake <i>Pseudechis colletti</i> and skink <i>Ctenotus schevilli</i> .
Comments:	4.9.1: Abundance of <i>Aristida latifolia</i> increases in heavily grazed and degraded areas. The exotic low tree <i>Vachellia nilotica</i> (2-5m tall) forms tall open shrublands in some areas in north-east, particularly where cattle grazing has occurred for years. 4.9.1b: Abundance of <i>Aristida latifolia</i> increases in heavily grazed and degraded areas. The exotic low tree <i>Vachellia nilotica</i> (2-5m tall) forms tall open shrublands in some areas in north-east, particularly where cattle grazing has occurred for years. 4.9.1c: Abundance of <i>Aristida latifolia</i> increases in heavily grazed and degraded areas. The exotic low tree <i>Vachellia nilotica</i> (2-5m tall) forms tall open shrublands in some areas in north-east, particularly where cattle grazing has occurred for years.
Estimated extent: ¹	Pre-clearing 4841000 ha; Remnant 2021 4823000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.9.2

Description: *Astrebla lappacea*, *A. pectinata* tussock grassland to open tussock grassland. The ephemeral grasses *Enneapogon avenaceus* and *Iseilema vaginiflorum* occur frequently and other species infrequently. A large number of forb species may occur, many of them ephemeral, which are seasonally abundant. Frequent species include *Atriplex spongiosa*, *Ipomoea lonchophylla*, *Cullen cinereum*, *Salsola australis* and *Sida trichopoda*. Other forbs occur infrequently. In overgrazed area, ephemeral grasses such *Dactyloctenium radulans* and *Iseilema vaginiflorum* and ephemeral forbs such as *Amaranthus mitchellii*, *Harmsiodoxa puberula*, *Rhodanthe floribunda* and *Salsola australis*, predominate and form seasonal herb lands. Occurs on flat to gently undulating plains formed on fresh Cretaceous sediments. Soils are shallow to moderately deep, brown cracking clays with a soft, self-mulching surface. A weak crust occurs. Traces of ironstone gravel occur of the surface. Soils are moderately to very strongly alkaline with soft lime present and gypsum usually occurs at depth. Not a Wetland. (BVG1M: 30b).

Vegetation communities in this regional ecosystem include:

4.9.2a: *Aristida latifolia*, *Enneapogon polyphyllus* open grassland wooded with scattered *Atalaya hemiglauc*a and *Ventilago viminalis*. Gilgai depressions dominated by perennial grasses such as *Bothriochloa ewartiana*, *Eulalia aurea* and *Astrebla* spp. Occurs on flat to gently undulating plains. Associated soils are generally shallow to deep, red clays with moderate to abundant amounts of ironstone and lateritic or siliceous gravel on the surface. Not a Wetland. (BVG1M: 30b).

4.9.2b: Mixed tussock grassland, with combinations of the species *Astrebla* spp., *Aristida latifolia*, *Enneapogon* sp. mixed tussock grassland. Emergent *Atalaya hemiglauc*a, *Ventilago viminalis* and *Corymbia terminalis* commonly occur. Occurs on rises of exposed Cretaceous shale and limestone with rocks to the surface. Cracking clay soils. Not a Wetland. (BVG1M: 30b).

4.9.2x1: *Enneapogon cylindricus* and *E. avenaceus* open tussock grassland to tussock grassland. Other species include *Dactyloctenium radulans*, *Heliotropium* spp. and *Salsola australis*. Commonly appears as bare limestone in times of drought. Occurs on flat to gently undulating exposures of Tertiary limestone in the south-west of the bioregion. Not a Wetland. (BVG1M: 31b).

Short description: *Astrebla lappacea* and *A. pectinata* +/- *A. elymoides* tussock grassland on Cretaceous sediments

Supplementary descriptions: Neldner (1991), 42d (84); Turner et al. (1993), F4 (1); Wilson and Purdie (1990a), F2 (45, 48)

Subregions: 2, 3, (5.5)

Protected areas: Diamantina NP

Extent in reserves: Medium

Wetland: Not a Wetland

Special values:

Comments: 4.9.2: Was previously partly mapped as 4.9.12x1. Floristic composition varies with seasonal conditions and land use. *Astrebla pectinata* predominates after several dry years, while *A. lappacea* and *Dichanthium* spp. increase in wetter years. In overgrazed areas, around watering points, ephemeral grasses such as *Dactyloctenium radulans* and *Iseilema vaginiflorum*, and ephemeral forbs predominate. Naturalised species associated with this regional ecosystem include **Portulaca oleracea*.
4.9.2x1: Previously mapped as part of 4.9.13d.

Estimated extent:¹ Pre-clearing 73000 ha; Remnant 2021 73000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.3

Description: [RE not in use]²: This regional ecosystem was wholly mapped in the Channel Country. *Astrebla squarrosa* usually predominates with *A. pectinata* being co dominant, and together form a tussock grassland. *Iseilema vaginiflorum* and *Aristida latifolia* are frequent, and abundant in heavily grazed areas. Shrubs are very sparse and infrequent. Occurs on flat clay plains on the Winton plateau formed from Tertiary mudstones. Associated soils are moderately deep, grey cracking clays with strongly self mulching surfaces. Broad shallow gilgais common. Not a Wetland. (BVG1M: 30b).

Short description: *Astrebla squarrosa* +/- *A. pectinata* +/- *Iseilema* spp. grassland on clay plains

Supplementary descriptions: Turner et al. (1993), F6; Neldner (1991), 42e (89);

Subregions:

Protected areas:

Extent in reserves:

Wetland: Not a Wetland

Special values:

Comments: 4.9.3: This ecosystem is in land zone 4 in channel country. Winton plateau.

Estimated extent:¹

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.4

Description: *Astrebla pectinata* tussock grassland occasionally with *A. lappacea* and *A. elymoides*. *Aristida latifolia* and *Iseilema vaginiflorum* occur frequently and may be abundant in some areas. Other short lived grasses may be abundant in wet summers. A large number of forbs from the Asteraceae, Brassicaceae, Chenopodiaceae, Convolvulaceae, Euphorbiaceae, Fabaceae, Malvaceae and Zygophyllaceae may occur in this association, particularly in a wet winter. Frequent species include *Abutilon malvifolium*, *Sclerolaena glabra*, *S. lanicuspis*, *Calotis hispidula*, *Crotalaria dissitiflora*, *Euphorbia drummondii*, *Salsola australis*, *Sida fibulifera*, and *S. trichopoda*. Woody plants are generally absent. Occurs on flat to undulating plains formed on Cretaceous sediments. Soils deep, with a weak gilgai microrelief, stony surface, red cracking clays. Surface stone may be desert varnished. Soils are neutral to mildly alkaline with gypsum present at depth. A weak surface crust is usually present. Not a Wetland. (BVG1M: 30b).

Vegetation communities in this regional ecosystem include:

4.9.4a: *Astrebla pectinata*, herbs +/- *Astrebla* spp. Occurs on undulating clay plain derived from weathered Cretaceous mudstones. Areas of gravel and lateritic surface common. Not a Wetland. (BVG1M: 30b).

4.9.4x1: *Astrebla pectinata* tussock grassland, commonly with *Aristida latifolia* (occasionally may dominate), *Astrebla lappacea*, *Eulalia aurea* and *Dichanthium* spp. Emergent *Atalaya hemiglaucula*, *Ventilago viminalis*, *Vachellia sutherlandii* and *Acacia georginae* may occur. Occurs on undulating plains of Cambrian and Tertiary limestone. Brown cracking clays with limestone rocks. Not a Wetland. (BVG1M: 30b).

4.9.4x1a: *Astrebla pectinata* tussock grassland, commonly with *Aristida latifolia*, *Astrebla lappacea* and *Eulalia aurea*. Emergent *Atalaya hemiglaucula*, *Ventilago viminalis* and *Vachellia sutherlandii* may occur. Occurs on undulating plains of Cambrian limestone and dolomite. Brown cracking clays with limestone rocks. Not a Wetland. (BVG1M: 30b).

4.9.4x1b: *Astrebla pectinata* tussock grassland, commonly with *Aristida latifolia*, *Eulalia aurea*, *Astrebla* spp., annual grasses and forbs. Emergent *Atalaya hemiglaucula*, *Acacia georginae* and *Ventilago viminalis* may occur. Occurs on undulating plains of Tertiary limestone, associated with eroding surfaces around the Georgina River. Shallow brown clays with limestone and chert rocks. Not a Wetland. (BVG1M: 30b).

4.9.4x1c: *Aristida latifolia*, *Astrebla* spp., *Dichanthium* spp. and *Eulalia aurea* tussock grassland. Emergent *Atalaya hemiglaucula* may occur. Bare areas commonly occur. Occurs on undulating plains of Tertiary limestone. Gravelly cracking clay soils with limestone and chert rocks. Not a Wetland. (BVG1M: 30b).

Short description: *Astrebla pectinata* and herbs +/- *Astrebla* spp. tussock grassland on Cretaceous sediments

Supplementary descriptions: Wilson and Purdie (1990a), F1 (LU 45), F2 (LU 48, 55), F4 (55); Neldner (1991), 43c (87)

Subregions: 7, 2, 1, (3), (1.1), (2.8), (1.2), (1.3), (5.2)

Protected areas: Wiliyan-ngurru NP

Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	<p>4.9.4: Potential habitat for threatened fauna species including bilby <i>Macrotis lagotis</i>, kowari <i>Dasyuroides byrnei</i> and plains-wanderer <i>Pedionomus torquatus</i>.</p> <p>4.9.4a: Potential habitat for threatened fauna species including bilby <i>Macrotis lagotis</i>, kowari <i>Dasyuroides byrnei</i> and plains-wanderer <i>Pedionomus torquatus</i>.</p>
Comments:	<p>4.9.4: This regional ecosystem can include minor areas on Cainozoic sediments (land zone 4) (Wilson and Purdie 1990a). Floristic composition varies with stone cover, seasonal conditions, fertility and land use. On western plains, a dense silcrete stone cover may be present, and restricts <i>Astrebla pectinata</i> to gilgai situations. <i>A. lappacea</i> rarely occurs where a dense surface gravel is present. <i>A. elymoides</i> may be co-dominant in wetter situations. Density and diversity of ephemeral forbs and grasses present depends on seasonal conditions. Naturalised species associated with this regional ecosystem include <i>*Vachellia farnesiana</i> which is scattered along drainage lines.</p> <p>4.9.4a: This regional ecosystem can include minor areas on Cainozoic sediments (land zone 4) (Wilson and Purdie 1990a). Floristic composition varies with stone cover, seasonal conditions, fertility and land use. On western plains, a dense silcrete stone cover may be present, and restricts <i>Astrebla pectinata</i> to gilgai situations. <i>A. lappacea</i> rarely occurs where a dense surface gravel is present. <i>A. elymoides</i> may be co-dominant in wetter situations. Density and diversity of ephemeral forbs and grasses present depends on seasonal conditions. Naturalised species associated with this regional ecosystem include <i>*Vachellia farnesiana</i> which is scattered along drainage lines.</p>
Estimated extent: ¹	Pre-clearing 313000 ha; Remnant 2021 313000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.9.5

Description: Seasonably variable mosaic of *Astrelia lappacea* +/- *Enneapogon* spp. open tussock grassland to open forbland. In grassland dominated areas *Astrelia lappacea* predominates with short grasses and forbs codominant in favourable seasonal conditions. *Astrelia elymoides* is often present as scattered tussocks, while the ephemeral grasses *Iseilema vaginiflorum* and *Enneapogon avenaceus* are abundant after summer rainfall. Ephemeral forbs are abundant after winter rainfall. *Astrelia pectinata* predominates after several dry years, while *Astrelia lappacea* and *Dichanthium* spp. increase in wetter years. Areas dominated by sparse forbland are floristically variable depending on seasonal conditions and local environment and often include *Salsola australis*, *Atriplex* spp., *Frankenia* spp., *Sclerolaena* spp. and less frequently *Maireana* spp. Occurs on flat to gently undulating plains. Soils shallow to moderately deep, fertile, red and brown cracking clays. Small to moderate amounts of ironstone gravel on the surface with traces throughout the profile. Soils derived from fresh Cretaceous sediments (land zone 9). Not a Wetland. (BVG1M: 30b).

Vegetation communities in this regional ecosystem include:

4.9.5a: *Aristida contorta* usually predominates forming an open to sparse tussock grassland. Other short grasses such as *Oxychloris scariosa*, *Enneapogon avenaceus* and *Sporobolus actinocladus* may be codominant. Ephemeral grasses such as *Brachyachne prostrata*, *Eriachne pulchella* and *Tripogon loliiformis* occur frequently, while the perennial *Aristida latifolia* and *Eragrostis xerophila* may be locally common. Ephemeral forbs such as *Gnephosis arachnoidea*, *Rhodanthe floribunda*, *Maireana dichoptera* and *Sclerolaena lanicuspis* may predominate after winter rain. Sparsely scattered shrubs may occur in places. Ground cover always sparse, varies with amount of stone cover and seasonal conditions. Short grasses build up after wet summers, while forbs common after winter rainfall. Occurs on level to gently undulating plains formed from fine grained sediments. Associated soils are generally shallow to deep, red clays and minor texture contrast soils with moderate to abundant amounts of ironstone and lateritic or siliceous gravel on the surface. Not a Wetland. (BVG 1M: 30b).

4.9.5b: *Astrelia pectinata* tussock grassland to open tussock grassland. Associated species include *Iseilema vaginiflorum* and *Sporobolus australasicus*. Occurs on undulating plains derived from Cretaceous mudstones, commonly with a shallow covering of Tertiary material. Brown and red cracking clays with surface ironstone gravel. Not a Wetland. (BVG1M: 30b).

4.9.5d: [RE not in use]²: This vegetation community is now mapped as 4.4.1x4b. *Astrelia* spp., *Aristida* spp., *Enneapogon* spp. tussock grassland, wooded with *Atalaya hemiglaucula* +/- *Ventilago viminalis*. Occurs on rises with variable layer of Tertiary deposit over mudstone. Large amounts of ironstone gravel in the profile. Red-brown clays. Not a Wetland. (BVG1M: 30b).

Short description:	Seasonably variable mosaic of <i>Astrelia lappacea</i> +/- <i>Enneapogon</i> spp. open tussock grassland and sparse to open forbland on Cretaceous sediments
Supplementary descriptions:	Neldner (1991), 47b, 47a (84); Wilson and Purdie (1990a), F2 (48, 59)
Subregions:	5, 3, (6), (5.4), (9.5)
Protected areas:	
Extent in reserves:	No representation
Wetland:	Not a Wetland
Special values:	4.9.5: Potential habitat for NCA listed species: <i>Sclerolaena blakei</i> .
Comments:	4.9.5: In overgrazed areas, around watering points, ephemeral grasses such as <i>Dactyloctenium radulans</i> and <i>Iseilema vaginiflorum</i> , and ephemeral forbs predominate. Floristic composition varies with seasonal conditions and land use. 4.9.5b: In overgrazed areas, around watering points, ephemeral grasses such as <i>Dactyloctenium radulans</i> and <i>Iseilema vaginiflorum</i> , and ephemeral forbs predominate. Floristic composition varies with seasonal conditions and land use. 4.9.5d: In overgrazed areas, around watering points, ephemeral grasses such as <i>Dactyloctenium radulans</i> and <i>Iseilema vaginiflorum</i> , and ephemeral forbs predominate. Floristic composition varies with seasonal conditions and land use.
Estimated extent: ¹	Pre-clearing 105000 ha; Remnant 2021 105000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.9.6

Description: Mixed *Astrebla* spp. tussock grassland, commonly with other perennial grasses, including *Panicum decompositum*, *Bothriochloa ewartiana*, *Eulalia aurea* and *Aristida leptopoda*. Emergents commonly occur, including *Hakea leucoptera*, *Acacia victoriae*, *Atalaya hemiglauca*, *Eucalyptus melanophloia*, *Acacia tephрина*, *A. cambagei*, *A. pendula* and *A. harpophylla*. Occurs on undulating clay plains derived from Cretaceous mudstones (typically Wallumbilla Formation). Associated soils are generally deep brown cracking clays. Not a Wetland. (BVG1M: 30b).

Short description: *Astrebla* spp. in mixed tussock grasslands wooded with mixed tree species on Cretaceous mudstones (Wallumbilla Formation)

Supplementary descriptions: Turner (1978), T1; Mills (1980), T5 (LU 54); Neldner (1984), 67

Subregions: 4, 5, (11.26), (6.4), (6.9), (6.6), (10.1)

Protected areas: Idalia NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values:

Comments: 4.9.6: Predominantly in the south-east of the bioregion.

Estimated extent:¹ Pre-clearing 141000 ha; Remnant 2021 129000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.7

Description: *Astrebla lappacea* tussock grassland, occasionally with *A. squarrosa* and *A. elymoides*. *Iseilema vaginiflorum* and *Panicum decompositum* may occur. Emergent *Acacia tephрина* and/or *A. cambagei* commonly occur. Occasional *Atalaya hemiglaucа*, *Ventilago viminalis*, *Alectryon oleifolius* and *Flindersia maculosa* may also be present. Scattered low shrubs are present, but rarely form a distinct layer. Occurs on flat to gently undulating plains formed from Cretaceous sediments. Soils moderately deep to deep, brown cracking clays derived from weathered sediments of Cretaceous Winton Formation. Soils usually self-mulching beneath a weakly developed crust. Not a Wetland. (BVG1M: 30b).

Vegetation communities in this regional ecosystem include:

4.9.7a: [RE not in use]²: This vegetation community is now mapped as 4.9.11x2. *Acacia tephрина* low woodland. *A. cambagei* occasionally occurs as a co-dominant. Scattered low shrubs are present, but a low shrubby layer rarely occurs. *Astrebla* spp. usually dominate the ground layer, but other short grasses and forbs occur. RE is defunct. Not a Wetland. (BVG1M: 27a).

4.9.7x1: [RE not in use]²: This regional ecosystem is now mapped as 4.9.11x2. *Acacia tephрина* and/or *Acacia cambagei* low open woodland to woodland, occasionally with *Atalaya hemiglaucа*. The ground layer is tussock grasses, predominantly *Astrebla* spp. Occurs on undulating plains derived from Cretaceous mudstones. Cracking clay soils. Not a Wetland. (BVG1M: 27a).

Short description:	<i>Astrebla lappacea</i> tussock grassland, wooded with <i>Acacia tephрина</i> +/- <i>A. cambagei</i> and <i>Atalaya hemiglaucа</i> on Cretaceous sediments
Supplementary descriptions:	Mills (1980), T1, T2, T3 (LU 51); Neldner (1991), 12 (26), 44a, 44b (91); Turner (1978), T2; Turner et al. (1993), T1, T2 (49, 50)
Subregions:	4, 5, (11.26), (5.5), (10.4), (6.9), (10.1), (10.2), (6.6)
Protected areas:	Idalia NP
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	4.9.7: Potential habitat for NCA listed species: <i>Acacia crombiei</i> , <i>Calotis suffruticosa</i> , <i>Eremophila stenophylla</i> .
Comments:	4.9.7: Where clumps of <i>Acacia cambagei</i> or <i>Acacia tephрина</i> are greater than 5ha these areas are mapped as <i>Acacia cambagei</i> (4.9.11) or <i>Acacia tephрина</i> (4.9.8a) low open woodland. Some areas have been cleared. Little regeneration of <i>Acacia tephрина</i> is occurring. Some areas associated with increased woody cover between 1951 and 1994 (Fensham and Fairfax, 2004). Seedling regeneration of <i>Acacia cambagei</i> has expanded onto adjacent grasslands in some areas. Floristic composition of ground layer is variable and affected by seasonal conditions and grazing history. 4.9.7a: Little regeneration of <i>Acacia tephрина</i> is occurring. Seedling regeneration of <i>Acacia cambagei</i> has expanded onto adjacent grasslands in some areas. Some areas have been cleared.
Estimated extent:¹	Pre-clearing 1254000 ha; Remnant 2021 1174000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.9.8

Description: *Astrelba lappacea* tussock grassland, occasionally with *A. squarrosa* and *A. elymoides*. *Iseilema vaginiflorum* and *Panicum decompositum* may occur. Other tussock grasses and forbs are present when seasonal conditions are favourable. Low *Atalaya hemiglauc*, *Alectryon oleifolius* subsp. *elongatus* and/or *Flindersia maculosa* trees may occur. Scattered low shrubs are present, but rarely form a distinct layer. Occurs on flat to gently undulating plains adjacent to alluvia or fringing undulating downs. Soils moderately deep to deep, brown cracking clays derived from weathered sediments of Cretaceous Winton Formation. Soils usually self-mulching beneath a weakly developed crust. Not a Wetland. (BVG1M: 30b).

Vegetation communities in this regional ecosystem include:

4.9.8a: [RE not in use]²: This vegetation community is now mapped as 4.9.8. *Astrelba lappacea* (5-30% cover) usually predominates forming a tussock grassland. In places, *A. pectinata* may predominate. *A. squarrosa* and *A. elymoides* are codominant occasionally. *Iseilema vaginiflorum* and *Panicum decompositum* are frequently conspicuous. Other tussock grasses and forbs are present when seasonal conditions are favourable. Low, scattered *Vachellia sutherlandii* or *Acacia victoriae* trees are always present. Scattered low shrubs are present, but rarely form a distinct layer. Occurs widely on flat to gently undulating plains frequently adjacent to alluvia or fringing undulating downs. Soils moderately deep to deep, brown cracking clays derived from weathered sediments of Cretaceous Winton Formation. Soils usually self-mulching beneath a weakly developed crust. Not a Wetland. (BVG1M: 26a).

4.9.8b: [RE not in use]²: This vegetation community has been amalgamated into 4.9.12x8. *Astrelba lappacea* usually predominates forming a tussock grassland with low *Atalaya hemiglauc*, *Alectryon oleifolius* subsp. *elongatus* and/or *Flindersia maculosa* trees forming a low open woodland in places. Occurs on flat to gently undulating plains frequently with shallow soils formed from Cretaceous sediments. Not a Wetland. (BVG1M: 30b).

Short description:	<i>Astrelba</i> spp. grassland wooded with <i>Atalaya hemiglauc</i> +/- <i>Alectryon oleifolius</i> +/- <i>Flindersia maculosa</i> on Cretaceous sediments
Supplementary descriptions:	Mills (1980) T4; Neldner (1991), 44c; Turner (1978), T1; Turner et al. (1993), T3 (51), F3 (53)
Subregions:	5, 4, (6), (6.8), (9.5), (2.5), (6.9), (10.1), (10.4), (11.26), (2.3), (10.2), (5.4), (6.6)
Protected areas:	Idalia NP, Lochern NP
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	4.9.8: Potential habitat for NCA listed species: <i>Acacia crombiei</i> , <i>Calotis suffruticosa</i> .
Comments:	4.9.8: Floristic composition of ground layer variable, affected by seasonal conditions and grazing history (Neldner, 1991). Some areas associated with increased woody cover between 1951 and 1994 (Fensham and Fairfax, 2004). 4.9.8a: Floristic composition of ground layer variable, affected by seasonal conditions and grazing history (Neldner, 1991).
Estimated extent: ¹	Pre-clearing 1253000 ha; Remnant 2021 1212000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.9.9

Description: *Astrebla lappacea* (5-30% cover) usually predominates forming a tussock grassland. In places, *A. pectinata* may predominate. *A. squarrosa* and *A. elymoides* are codominant occasionally. *Iseilema vaginiflorum* and *Panicum decompositum* are frequently conspicuous. Other tussock grasses and forbs are present when seasonal conditions are favourable. Low, scattered *Vachellia sutherlandii* or *Acacia victoriae* trees are always present. Scattered low shrubs are present, but rarely form a distinct layer. Occurs widely on flat to gently undulating plains frequently adjacent to alluvia or fringing undulating downs. Soils moderately deep to deep, brown cracking clays derived from weathered sediments of Cretaceous Winton Formation. Soils usually self-mulching beneath a weakly developed crust. Not a Wetland. (BVG1M: 30b).

Short description: *Astrebla* spp. grassland wooded with *Vachellia sutherlandii* or *Acacia victoriae* on Cretaceous sediments

Supplementary descriptions: Neldner (1991), 44d, 44e (99); Turner et al. (1993e), F3

Subregions:

Protected areas:

Extent in reserves:

Wetland: Not a Wetland

Special values:

Comments: 4.9.9: Floristic composition of ground layer variable, affected by seasonal conditions and grazing history (Neldner, 1991).

Estimated extent:¹

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.10

Description: *Acacia georginae* and/or *A. cambagei* tall open shrubland to low open woodland, with scattered *Ptilotus obovatus* sub shrubs frequently present. The ground stratum is dominated by short-lived perennial grasses, including *Aristida latifolia*, *Enneapogon polyphyllus*, *Aristida calycina* and *Enneapogon avenaceus*. The long-lived perennial grasses *Enteropogon acicularis* and *Eragrostis xerophila*, and the shorter-lived sedge *Fimbristylis dichotoma* occur frequently. A wide range of forbs may be present. The present *Ipomoea muelleri*, *Pterocaulon serrulatum*, *Solanum quadriloculatum* and *Streptoglossa odora* occur frequently. *Sclerolaena* spp., *Calotis* spp., *Hibiscus* spp., *Portulaca* spp., *Sida* spp., *Stenopetalum* spp. and other genera occur infrequently but many become seasonally prominent. Occurs on flat to undulating plains derived from Cambrian or Tertiary limestone. Soils shallow to moderately deep, crusted red clays with large amounts of siliceous, and minor ironstone gravel on the surface. Soils are moderately alkaline at depth. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.9.10a: *Acacia georginae* tall open shrubland, occasionally with *Corymbia terminalis* and *Atalaya hemiglauca*. A shrub layer may occur, including *Acacia georginae*, *Senna* spp., *Eremophila* spp. and *Carissa lanceolata*. The ground layer is patchy, most commonly *Astrebula pectinata*. Bare areas may occur. Occurs on undulating Cambrian limestone surfaces west of the Georgina River. Shallow clay soils. Not a Wetland. (BVG1M: 26a).

4.9.10b: *Acacia cambagei* and/or *A. georginae* low open woodland, occasionally with *Corymbia terminalis* and *Atalaya hemiglauca*. A shrub layer may occur, including *Acacia cambagei*, *A. georginae*, *Senna* spp., and *Eremophila* spp. The ground layer is patchy tussock grasses. Occurs on undulating Cambrian limestone surfaces, east (or north) of the Georgina River. Shallow, brown clays with limestone rocks. Not a Wetland. (BVG1M: 26a).

4.9.10c: *Acacia georginae* tall open shrubland, occasionally with *Corymbia terminalis*, *Atalaya hemiglauca* and *Grevillea striata*. A shrub layer may occur, including *Acacia georginae*, *Senna* spp., and *Eremophila* spp. May include patches of *Senna* spp., *Eremophila* spp. Low open shrubland. Occurs on exposures of Tertiary limestone, associated with eroding surfaces around the Georgina River. Shallow brown clays with limestone and chert rocks. Not a Wetland. (BVG1M: 26a).

4.9.10d: *Acacia cambagei* low open woodland, occasionally with *Atalaya hemiglauca* and *Corymbia terminalis*. A shrub layer of *Acacia cambagei* may occur. The ground layer is patchy tussock grasses. Occurs on exposures of Tertiary limestone. Shallow brown clays with limestone and chert rocks. Not a Wetland. (BVG1M: 26a).

Short description: *Acacia georginae* and/or *Acacia cambagei* tall open shrubland on limestone

Supplementary descriptions: Neldner (1991), 28b (24); Wilson and Purdie (1990a), T2 (44)

Subregions: 1, 7, 1.3, (5.1), (2), (1.1), (5.2), (5.3)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments: 4.9.10: In many places, 80-90% of tall shrubs stand dead with little or no regeneration. Density of short grasses increases after several wet summers.

Estimated extent:¹ Pre-clearing 487000 ha; Remnant 2021 487000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.11

Description: *Acacia cambagei* low woodland to low open woodland. Scattered shrubs particularly *Eremophila mitchellii* but also *Santalum lanceolatum*, *Geijera parviflora*, *Flindersia maculosa*, *Alectryon oleifolius* and *Carissa ovata* can be present. Occurs on flat to gently undulating plains formed on Cretaceous sediments. Soils deep to very brown - reddish brown and grey cracking clay soils, sometimes with weak gilgai development and often with scattered surface gravel or light stone cover. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.9.11x1: Mixed low open woodland to low woodland, with a combinations of the species *Acacia tephрина* (predominantly), *Acacia cambagei*, *Atalaya hemiglaucа*, *Ventilago viminalis*, *Lysiphyllum carronii* and *Acacia crombiei*. The ground layer is tussock grasses, predominantly *Astrebla* spp. Occurs on undulating plains derived from Cretaceous mudstones in northern parts of the Central Downs subregion. Cracking clay soils. Not a Wetland. (BVG1M: 27a).

4.9.11x2: *Acacia tephрина* low open woodland to woodland, occasionally with *Acacia cambagei* and *Atalaya hemiglaucа*. The ground layer is tussock grasses, predominantly *Astrebla* spp. Occurs on undulating plains derived from Cretaceous mudstones. Cracking clay soils. Not a Wetland. (BVG1M: 27a).

4.9.11x40: *Acacia cambagei* low open forest to low woodland, occasionally with *Atalaya hemiglaucа* and *Santalum lanceolatum*. A shrub layer may occur, including *Acacia cambagei* and *Eremophila* spp. The ground layer is sparse forbs and tussock grasses. Occurs on flat to gently undulating plains of old alluvial deposits overlying Cretaceous mudstones. Red-brown to brown cracking clays soils, commonly with scattered surface gravel. Not a Wetland. (BVG1M: 26a).

Short description:	<i>Acacia cambagei</i> low woodland with scattered shrubs such as <i>Eremophila mitchellii</i> and <i>Geijera parviflora</i> on Cretaceous sediments
Supplementary descriptions:	Mills (1980), G1 (LU 38), G2 (LU 39); Neldner (1984), 40c, 44b; Neldner (1991), 5a (14); Turner (1978), G1 (15), G2 (16); Turner et al. (1993), G1, G2 (8, 9); Wilson and Purdie (1990a), T1 (LU 38)
Subregions:	4, 5, 6, (2.5), (9.5), (5.4), (10.1), (6.9), (10.4), (10.2), (5.5), (6.6), (11.26), (6.5)
Protected areas:	Lochern NP, Bladensburg NP, Idalia NP, Welford NP
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	4.9.11: High fauna diversity compared to surrounding grasslands. 4.9.11x1: High fauna diversity compared to surrounding grasslands. Habitat for <i>Acacia crombiei</i> (Vulnerable). 4.9.11x40: High fauna diversity compared to surrounding grasslands.
Comments:	4.9.11: Gidgee thickening and spread onto adjacent grasslands has occurred between 1951 and 1994 although increases have been offset by clearing during this time (Fensham and Fairfax 2005). Major threats include further clearing and the associated fragmentation. The ground layer of much of the remnant area has been invaded by buffel grass * <i>Cenchrus ciliaris</i> . 4.9.11x1: Gidgee thickening and spread onto adjacent grasslands has occurred between 1951 and 1994 although increases have been offset by clearing during this time (Fensham and Fairfax 2005). Major threats include further clearing and the associated fragmentation. The ground layer of much of the remnant area has been invaded by buffel grass * <i>Cenchrus ciliaris</i> . 4.9.11x2: Previously mapped as 4.9.7a and 4.9.7x1. 4.9.11x40: Previously mapped as 4.9.11. x40 code denotes change of land zone (land zone 4). Regional ecosystem 4.9.14x42 has been amalgamated into this regional ecosystem. Gidgee thickening and spread onto adjacent grasslands has occurred between 1951 and 1994 although increases have been offset by clearing during this time (Fensham and Fairfax 2005). Major threats include further clearing and the associated fragmentation. The ground layer of much of the remnant area has been invaded by buffel grass * <i>Cenchrus ciliaris</i> .
Estimated extent:¹	Pre-clearing 1814000 ha; Remnant 2021 928000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.9.12

Description: *Corymbia terminalis* low open woodland, commonly with *Atalaya hemiglaucа* and *Lysiphyllum gilvum*. Scattered shrubs including *Acacia victoriae* are often present, but rarely form a distinct layer. Much of the ground is bare or stony with scattered *Enneapogon* spp. and *Aristida contorta*. *Astrebla* spp., *Eulalia aurea* and *Chrysopogon*

fallax dominate gilgai in the area. Occurs sporadically on plains formed from fine grained sediments. Soils generally shallow calcareous clays, with deeper clay soils in gilgai. Not a Wetland. (BVG1M: 27a).

Vegetation communities in this regional ecosystem include:

4.9.12x1: [RE not in use]²: This regional ecosystem has been amalgamated into 4.9.2. *Aristida latifolia* and/or *Astrebla pectinata* sometimes with *Enneapogon* spp. And patches of *Eulalia aurea*. Clay plains of Mesozoic origin. Not a Wetland. (BVG1M: 30b).

4.9.12x2: *Eucalyptus microtheca* low open woodland or woodland. There is a sparse mixed shrub layer and tussock grass ground layer. Occurs on pre-Cambrian limestone or dolomite. Not a Wetland. (BVG1M: 16c).

4.9.12x3: [RE not in use]²: This regional ecosystem is now mapped as 4.9.12x7a. Mixed low open woodland, including combinations of the species *Corymbia aparrerinja*, *C. terminalis*, *Grevillea striata*, *Hakea chordophylla* and *Lysiphyllum gilvum*. *Atalaya hemiglauc*a and *Acacia excelsa* subsp. *angusta* may occur. The ground layer is tussock grasses and *Triodia* spp. Small areas of *Senna* spp. And *Eremophila* spp. Shrubland may occur. Occurs on exposures of Tertiary limestone, commonly around the margins of broad Tertiary clay plains. Shallow brown clays with limestone and chert rocks. Not a Wetland. (BVG1M: 19b).

4.9.12x4: *Corymbia terminalis* and/or *Eucalyptus leucophylla* low open woodland, occasionally with *Atalaya hemiglauc*a, *Denhamia oleaster*, *Acacia georginae*, *Grevillea striata*, *Ventilago viminalis*, *Hakea chordophylla*, *E. leucophylla* and *Acacia cambagei*. A shrub layer may occur, including *Senna* spp., *Eremophila* spp. And *Acacia* spp.. The ground layer is sparse tussock grasses. Occurs on exposures of Cambrian and Tertiary limestone. Shallow clays and skeletal soils. Not a Wetland. (BVG1M: 19b).

4.9.12x4a: *Corymbia terminalis* and/or *Eucalyptus leucophylla* low open woodland, occasionally with *Atalaya hemiglauc*a, *Denhamia oleaster*, *Acacia georginae*, *Grevillea striata*, *Ventilago viminalis*, *Hakea chordophylla*, *E. leucophylla* and *Acacia cambagei*. A shrub layer may occur, including *Senna* spp., *Eremophila* spp. And *Acacia* spp.. The ground layer is sparse tussock grasses. Occurs on undulating rises and low hills of Cambrian limestone. Shallow clays and skeletal soils. A thin veneer of Tertiary sand may occur on the surface. Not a Wetland. (BVG1M: 19b).

4.9.12x4b: Mixed low open woodland, with combinations of the species *Corymbia terminalis*, *Atalaya hemiglauc*a, *Ventilago viminalis*, *Acacia georginae* and *Owenia acidula*. A shrub layer may occur including *Senna* spp., *Eremophila* spp. The ground layer is sparse tussock grasses. Occurs on exposures of Tertiary limestone, associated with eroding surfaces around the Georgina River. Shallow brown clays with limestone and chert rocks. Not a Wetland. (BVG1M: 19b).

4.9.12x4c: [RE not in use]²: This vegetation community is now mapped as 4.9.12x6. *Atalaya hemiglauc*a, *Hakea chordophylla* low open woodland, occasionally with *Corymbia terminalis* and *Capparis umbonata*. The ground layer is sparse tussock grasses. Occurs on rolling low hills of Cambrian shale, chert and limestone. Shallow clays and skeletal soils. Not a Wetland. (BVG1M: 27b).

4.9.12x5: *Eucalyptus coolabah*, *Acacia georginae* low open woodland, occasionally with *Corymbia terminalis* and *Atalaya hemiglauc*a. The ground layer is tussock grasses, including *Astrebla pectinata*, *Chrysopogon fallax*, *Eulalia aurea* and *Iseilema* sp. Occurs on exposures of Tertiary limestone, associated with eroding surfaces around the Georgina River. Shallow brown clays with limestone and chert rocks. Not a Wetland. (BVG1M: 18c).

4.9.12x6: *Atalaya hemiglauc*a, *Hakea chordophylla* low open woodland, occasionally with *Corymbia terminalis*, *Psydrax* sp., *Ventilago viminalis* and *Grevillea striata*. The ground layer is sparse tussock grasses. Occurs on rolling low hills of Cambrian shale, chert and limestone. Not a Wetland. (BVG1M: 27a).

4.9.12x7a: Mixed low open woodland, including combinations of the species *Corymbia aparrerinja*, *C. terminalis*, *Grevillea striata*, *Hakea chordophylla* and *Lysiphyllum gilvum*. *Atalaya hemiglauc*a and *Acacia excelsa* subsp. *angusta* may occur. The ground layer is tussock grasses and *Triodia* spp. Small areas of *Senna* spp. and *Eremophila* spp. shrubland may occur. Occurs on exposures of Tertiary limestone (Noranside Limestone), commonly around the margins of broad Tertiary clay plains. Not a Wetland. (BVG1M: 19b).

4.9.12x7b: Mixed low open woodland, including combinations of the species *Atalaya hemiglauc*a, *Ventilago viminalis*, *Grevillea striata*, *Corymbia terminalis* and *Hakea chordophylla*. A shrub layer of *Senna* spp. may occur. The ground layer is sparse tussock grasses. Occurs on exposures of Tertiary or Mesozoic limestones. Shallow brown clays with limestone and chert rocks. Not a Wetland. (BVG1M: 19b).

4.9.12x7c: *Corymbia terminalis*, *Grevillea striata*, *Acacia victoriae* low open woodland. Occurs on exposures of Tertiary limestone. Not a Wetland. (BVG1M: 19b).

4.9.12x7d: Mixed open woodland, with combinations of the species *Corymbia terminalis*, *Atalaya hemiglauc*a, *Ventilago viminalis*, *Acacia georginae* and *Owenia acidula*. A shrub layer may occur including *Senna* spp., *Eremophila* spp. The ground layer is sparse tussock grasses. Occurs on exposures of Tertiary limestone, associated with eroding surfaces around the Georgina River. Shallow brown clays with limestone and chert rocks. Not a Wetland. (BVG1M: 19b).

4.9.12x8: Mixed low open woodland, including combinations of the species *Atalaya hemiglauc*a, *Ventilago viminalis*, *Corymbia terminalis* and *Denhamia oleaster*. A sparse shrub layer may occur. The ground layer is tussock grasses, including *Aristida* spp., *Enneapogon* spp. and *Astrebla lappacea*. Occurs on rises of exposed

Cretaceous mudstone (Toolebuc Formation) with rocks to the surface. Not a Wetland. (BVG1M: 19b).

Short description:	Corymbia terminalis low open woodland with Astrebla pectinata +/- Eulalia aurea on plains of fine grained sediments
Supplementary descriptions:	Neldner (1991), 19b (44)
Subregions:	2, 5, 7, 1.3, (3), (1), (1.1), (6), (2.3), (2.8), (2.5)
Protected areas:	Wiliyan-ngurru NP
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	
Comments:	4.9.12: Little regeneration or coppicing of Corymbia terminalis is occurring, possibly due to high total grazing pressure. Extensively invaded by buffel grass *Cenchrus ciliaris. 4.9.12x2: Astrebla spp. are absent. 4.9.12x6: Was previously mapped as 4.9.12x4c. Little regeneration or coppicing of Corymbia terminalis is occurring, possibly due to high total grazing pressure. Extensively invaded by buffel grass *Cenchrus ciliaris. 4.9.12x7a: Was previously mapped as 4.9.12x3. 4.9.12x8: Was previously partly mapped as 4.9.8b.
Estimated extent: ¹	Pre-clearing 235000 ha; Remnant 2021 235000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	Threatening processes other than clearing.

Regional ecosystem 4.9.13

Description: *Senna artemisioides* subsp. *helmsii* and *S. artemisioides* subsp. *oligophylla* open shrubland, occasionally with *Acacia* spp. Scattered low trees such as *Corymbia terminalis*, *Atalaya hemiglauc*a and *Acacia georginae* may occur. The sub shrub *Ptilotus obovatus* occurs frequently. *Scaevola laciniata* and other shrubs are present infrequently. The ground layer is usually dominated by the short grasses *Enneapogon avenaceus*, *E. cylindricus*, *Digitaria divaricatissima* var. *divaricatissima*, *Tripogon loliiformis* and the forbs *Euphorbia australis*, *Rhodanthe floribunda*, *Melhania oblongifolia* and *Trichodesma zeylanicum* occur frequently. A variety of other perennial and ephemeral forbs are present infrequently. Occurs on flat to gently undulating plateau tops and footslopes of Cambrian limestone residuals. Soils predominantly shallow red calcareous soils and minor gradational calcareous soils. Limestone fragments occurs throughout the profile, usually with slight texture and colour changes with increasing depth. Soils are very strongly alkaline. Surfaces are crusted, often with moderate structure development due to organic matter accumulation. Soils are pulverulent. Not a Wetland. (BVG1M: 24b).

Vegetation communities in this regional ecosystem include:

4.9.13a: Mixed shrubland, with combinations of the species *Senna artemisioides* subsp. *helmsii*, *Senna artemisioides* subsp. *oligophylla*, *Acacia chisholmii*, *A. bivenosa*, *Eremophila* spp., *Senna* spp. and *Acacia* spp. Emergent *Eucalyptus leucophylla*, *Corymbia terminalis* and *A. cambagei* may occur. The ground layer is patchy, with tussock grasses and *Triodia* spp. Occurs on Cambrian limestone low hills. Shallow clays and skeletal soils. Not a Wetland. (BVG1M: 24b).

4.9.13b: Mixed shrubland, with combinations of the species *Senna artemisioides* subsp. *helmsii*, *Senna artemisioides* subsp. *oligophylla*, *Eremophila* spp., *Acacia bivenosa*, *A. sibirica*, *Senna* spp. and *Acacia* spp. Emergent *Acacia georginae* and *Corymbia terminalis* may occur. Occurs on undulating Cambrian limestone and dolomite landscapes. Shallow clays and skeletal soils. Not a Wetland. (BVG1M: 24b).

4.9.13c: Mixed shrubland, with a combination of the species *Acacia chisholmii*, *Senna* spp., *Eremophila* spp., *Hakea chordophylla* and *Acacia* spp. Emergent *Corymbia terminalis*, *Acacia cambagei* and *Acacia aneura* may occur. *Triodia* spp. commonly dominate the ground layer. Occurs on exposures of Cambrian limestone and shale, commonly overlain by eroding lateritic surfaces. Shallow clays and skeletal soils. Not a Wetland. (BVG1M: 24b).

4.9.13d: Mixed shrubland, with combinations of the species *Senna artemisioides* subsp. *helmsii*, *Senna artemisioides* subsp. *oligophylla*, *Eremophila* spp., *Acacia bivenosa*, *A. sibirica*, *Senna* spp. and *Acacia* spp. Emergent *Acacia georginae* and *Corymbia terminalis* may occur. Occurs on rises and low hills of Tertiary limestones and mudstones around the Diamantina River. Not a Wetland. (BVG1M: 24b).

4.9.13x1: *Triodia longiceps* hummock grassland. Emergent *Corymbia terminalis* and *Senna* spp. may occur. Occurs on rises and low hills of Cambrian limestone (Chatsworth Limestone). Not a Wetland. (BVG1M: 24b).

Short description: *Senna artemisioides* subsp. *helmsii* and *S. artemisioides* subsp. *oligophylla* +/- *Acacia* spp. open shrubland on tops and footslopes of Cambrian limestone residuals

Supplementary descriptions: Wilson and Purdie (1990a), R3 (29); Neldner (1991), 33 (22)

Subregions: 1, 2, 1.3, (5.1), (1.1), (7), (3), (5.5), (5.2), (5.3)

Protected areas: Diamantina NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.9.13: Potential habitat for vulnerable plant species, *Eremophila tetraptera*.

Comments: 4.9.13: Many *Acacia georginae* tall shrubs stand dead with little regeneration present.

Estimated extent:¹ Pre-clearing 297000 ha; Remnant 2021 296000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.14

Description: *Acacia georginae* or *A. cambagei* low open woodland to tall open shrubland. Scattered *Senna artemisioides* subsp. *oligophylla* shrubs are usually present. The ground stratum is dominated by *Astrebla pectinata* with *Aristida latifolia*, *Eragrostis setifolia* and the ephemerals *Enneapogon avenaceus*, *Iseilema vaginiflorum*, and *Tripogon loliiformis* occurring frequently. A variety of ephemeral and some perennial forbs may be present, the former often becoming seasonally prominent. Frequent species include *Sclerolaena lanicuspis*, *Crotalaria dissitiflora*, *Goodenia fascicularis*, *Rhynchosia minima*, *Salsola australis*, *Sida fibulifera*, *S. trichopoda* and *Roepera ammophila*. Species from Asteraceae, Chenopodiaceae, Malvaceae and other families occurs infrequently. Occurs on flat to gently undulating plains formed from Cainozoic deposits overlying limestone. Soils are moderately deep-to-deep, red cracking clays with self-mulching surfaces. Weak gilgai micro relief and surface crusts are common. Soils are moderately to very strongly alkaline usually with lime present throughout the profile and small amounts of gypsum at depth. Scattered siliceous and ironstone gravel occurs at the surface. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.9.14x1: *Acacia cambagei* grassy tall open shrubland (Ht 5-7m; density 50-150/ha) becoming a shrubby open tussock grassland in some areas. Occurs on gently undulating plains (0-1%) formed on alluvial clay plains overlying a wide range of geological beds. Not a Wetland. (BVG1M: 26a).

4.9.14x40: *Acacia georginae* and/or *Acacia cambagei* low open woodland to tall open shrubland, occasionally with *Atalaya hemiglauc*, *Corymbia terminalis* and *Acacia excelsa* subsp. *angusta*. A shrub layer of *Acacia georginae* and/or *Acacia cambagei* commonly occurs. The ground layer is patchy tussock grasses. Occurs on Tertiary clay plains and early Quaternary clay deposits in the west of the bioregion. Cracking clay soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.9.14x40a: *Acacia cambagei* and/or *Acacia georginae* low open woodland, occasionally with *Atalaya hemiglauc*, *Corymbia terminalis* and *Acacia excelsa* subsp. *angusta*. A lower shrub layer of *Acacia cambagei* and/or *Acacia georginae* commonly occurs. The ground layer is patchy tussock grasses. Occurs on eroding margins of Tertiary clay plains and high-level, old alluvial deposits east of the Georgina River. Cracking clay soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.9.14x40b: *Acacia georginae* tall open shrubland, occasionally with *Atalaya hemiglauc*, *Corymbia terminalis* and *Acacia excelsa* subsp. *angusta*. A lower shrub layer of *Acacia georginae* commonly occurs. The ground layer is patchy tussock grasses. Occurs on eroding margins of Tertiary clay plains and high-level, old alluvial deposits west of the Georgina River. Cracking clay soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.9.14x40c: *Acacia georginae* and/or *Acacia cambagei* low open woodland, occasionally with *Atalaya hemiglauc*, *Corymbia terminalis* and *Acacia excelsa* subsp. *angusta*. A lower shrub layer of *Acacia georginae* and/or *Acacia cambagei* commonly occurs. The ground layer is patchy tussock grasses. Occurs on early Quaternary clay deposits associated with the edges of broad sand sheets of the Northwest Highlands bioregion. Cracking clay soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.9.14x41: Mixed low open woodlands, with combinations of the species *Atalaya hemiglauc*, *Ventilago viminalis*, *Grevillea striata*, *Acacia cambagei* and *Vachellia sutherlandii*. Occurs on Tertiary clay plains. Cracking clay soils, commonly with surface gravel lag. Not a Wetland. (BVG1M: 27b).

4.9.14x42: [RE not in use]²: This regional ecosystem is now mapped as 4.9.11x40. *Acacia cambagei* low open woodland. A shrub layer dominated by *Acacia cambagei* may occur. The ground layer is sparse tussock grasses. Occurs on Tertiary high-level clay alluvial deposits near the Thomson River. Commonly gravelly. Not a Wetland. (BVG1M: 26a).

4.9.14x43: *Acacia cambagei* tall open shrubland to low open woodland. The ground layer is dominated by *Astrebla* spp. Occurs on gently undulating plains of wind-blown clay (parna) overlying Tertiary limestones/mudstones. Red powdery clays. Not a Wetland. (BVG1M: 26a).

4.9.14x44: *Acacia cambagei* low open woodland, occasionally with *Atalaya hemiglauc*. A shrub layer of *Acacia cambagei* commonly occurs. The ground layer is bare to very sparse tussock grasses and forbs. Occurs on high-level, Tertiary alluvial deposits associated with the Kynuna Plateau subregion. Red-brown clay soils, usually with a thick gravelly or cobbly surface. Not a Wetland. (BVG1M: 26a).

Short description: *Acacia georginae* or *A. cambagei* low open woodland with *Astrebla* spp. on limestone

Supplementary descriptions: Wilson and Purdie (1990a), T2 (40); Neldner (1991), 10a, 10b (20)

Subregions: 7, 3, 1, 2, 5, (1.1), (1.3), (5.1), (5.4), (5.3), (1.2), (2.3)

Protected areas: Diamantina NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values:

Comments: 4.9.14: Ephemeral herbs occur seasonally, grasses in summer and forbs in winter. This regional ecosystem occurs on Cainozoic deposits (land zone 4). Ephemeral herbs occur seasonally, grasses in summer and forbs in winter.
4.9.14x1: Occurs on alluvial clay plains (land zone 3).
4.9.14x40: Was previously partly mapped as 4.4.1x3.
4.9.14x41: 4.4.1a has been amalgamated into this RE.

Estimated extent:¹ Pre-clearing 476000 ha; Remnant 2021 465000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.15

Description: *Acacia harpophylla* tall shrubland to low woodland. Emergent *Atalaya hemiglauc*a and *Brachychiton rupestris* may occur. Other tall shrubs include *Heliodendron basalticum*, *Eremophila mitchellii* and *Santalum lanceolatum*. A low shrub layer, including *Capparis anomala*, *Eremophila deserti* and *Capparis lasiantha* may occur. The ground layer is sparse to open, and consists of grasses and forbs. Occurs on gently undulating plains formed on Cretaceous sediments. Associated soils include shallow to moderately deep grey cracking clays or shallow to moderately deep medium to heavy clays usually a weak gilgai microrelief and with a light cover of ironstone pebble and sandstone rock on the surface. Not a Wetland. (BVG1M: 25a).

Short description: *Acacia harpophylla* tall shrubland with scattered emergent *Atalaya hemiglauc*a +/- *Eucalyptus* spp. on Cretaceous sediments

Supplementary descriptions: Neldner (1984), 59; Turner (1978), B5 (31), B1 (18)

Subregions: 4, (6.9), (6.6), (6.4), (6.5)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments: 4.9.15: Extensively cleared. Major threats include further clearing and the associated fragmentation and introduction of exotic pasture species.

Estimated extent:¹ Pre-clearing 52000 ha; Remnant 2021 11000 ha

VM class: Of concern

Biodiversity status: Of concern

Biodiversity status notes:

Regional ecosystem 4.9.16

Description: *Acacia cambagei* tall shrubland to low open woodland. *Flindersia maculosa* and *Santalum lanceolatum* are frequently present in the canopy. A lower shrub stratum may occur and is dominated by either *A. cambagei* and/or *Senna artemisioides* subsp. *oligophylla*, with scattered *Carissa lanceolata*, *Enchylaena tomentosa*, *Eremophila latrobei* and *E. mitchellii* shrubs occurring frequently. The ground stratum is dominated by the perennial grass *Enteropogon acicularis*, with *Bothriochloa ewartiana* and *Chrysopogon fallax* locally prominent, and *Eragrostis xerophila* and the shorter-lived *Aristida latifolia* present frequently. *Sporobolus actinocladus* and other ephemerals may be seasonally abundant. A variety of forbs, including *Abutilon* spp. and *Sida* spp. occur infrequently although the ephemerals may become seasonally prominent. Occurs on Cretaceous sediments with mantled pediments derived by erosion of Tertiary land surface. Landform typically low hills and associated undulating plains with slopes between 1-3%. Soils Shallow to deep, red clays and texture contrast soils overlying weathered rock. Red cracking clays often occur adjacent to this unit. The gravelly clays are crusted and the texture contrast soils have hard setting surfaces with a structured clay subsoil. Soils are slightly acid to neutral but may be moderately alkaline at depth. Not a Wetland. (BVG1M: 26a).

Vegetation communities in this regional ecosystem include:

4.9.16a: *Acacia cambagei* low woodland to low open forest, occasionally with *Atalaya hemiglaucula* and *Acacia aneura*. A lower shrub layer of *Acacia cambagei* commonly occurs. The ground layer is sparse tussock grasses. Occurs on mantled pediments surrounding Tertiary lateritic plateaus derived from deeply weathered Mesozoic sediments. Stripped red-brown clays with surface gravel lag. Not a Wetland. (BVG1M: 26a).

4.9.16x40: *Acacia cambagei* low woodland to low open forest, occasionally with *Atalaya hemiglaucula*. A shrub layer of *Acacia cambagei* commonly occurs. The ground layer is sparse tussock grasses and forbs. Occurs on undulating deposits of old alluvial and outwash clay materials overlying Cretaceous mudstones. primarily around the Kynuna Plateau subregion. Red-brown clays with surface gravel and cobble. Not a Wetland. (BVG1M: 26a).

Short description:	<i>Acacia cambagei</i> +/- scattered shrub species including <i>Santalum lanceolatum</i> and <i>Eremophila mitchellii</i> tall shrubland
Supplementary descriptions:	Mills (1980), G2 (LU 40, 41), G3 (LU 42); Neldner (1991), 26e (18); Turner et al. (1993), G3 (LU 10, 66); Wilson and Purdie (1990a), T1 (LU 37)
Subregions:	3, 4, 5, 2, (5.4), (6.9), (1.3), (5.5), (2.8)
Protected areas:	Lochern NP, Welford NP, Lark Quarry CP
Extent in reserves:	Low
Wetland:	Not a Wetland
Special values:	4.9.16: High fauna diversity compared to surrounding grasslands.
Comments:	4.9.16: This was listed in Sattler and Williams under 4.7.5 but has been reallocated to the correct land zone. Extensive areas of this regional ecosystem are regenerating in dense stands of young seedlings, from the 1950's and the 1970's, with an overstorey of older, often dead, trees (Fensham and Fairfax, 2004). Clearing is occurring. Major threats include further clearing and the associated fragmentation and introduction of exotic pasture species. 4.9.16x40: Previously mapped as 4.9.16 or 4.9.16a. x40 code denotes change of land zone (land zone 4).
Estimated extent:¹	Pre-clearing 270000 ha; Remnant 2021 242000 ha
VM class:	Least concern
Biodiversity status:	No concern at present
Biodiversity status notes:	

Regional ecosystem 4.9.17

Description: *Acacia harpophylla* low woodland, commonly with *Acacia cambagei*. *Eucalyptus thozetiana* is sometimes an emergent on upper slopes. Scattered *Atalaya hemiglauc*a may occur. Trees such as *Flindersia maculosa* and *Brachychiton rupestris* trees and tall shrubs such as *Eremophila mitchellii*, *Geijera parviflora*, *Hakea leucoptera* and *Alectryon oleifolius* subsp. *elongatus* are usually present and may form a well-defined layer. The ground layer is often sparse although grasses and forbs are seasonally abundant. Dominant grasses include the perennials *Paspalidium constrictum* and *Enteropogon acicularis* and the short grass *Sporobolus caroli*. The forbs *Abutilon oxycarpum*, *Sida fibulifera* and *Portulaca* spp. occur frequently while the sub shrubs *Chenopodium desertorum* and *Enchylaena tomentosa* may be abundant. Occurs on labile Cretaceous shales. Soils are usually deep to very deep, brown to reddish brown cracking clays with soft self-mulching surfaces with variable gilgai development. Stone cover is usually light although may be heavy in scarp retreat zones. Not a Wetland. (BVG1M: 25a).

Short description: *Acacia harpophylla* +/- *A. cambagei* low woodland on undulating Cretaceous sediments

Supplementary descriptions: Neldner (1984), 42a, 42b; Turner (1978), G3 (LU 17); Mills and Lee (1990), G2 (LU33)

Subregions: 4, 6.4, (6.3), (11.26), (6.5), (6.6)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values:

Comments: 4.9.17: This was described in Sattler and Williams (1999) under 4.4.2 but has been reallocated to the correct land zone. Extensively cleared. The understorey of many remaining areas has been invaded by buffel grass **Cenchrus ciliaris*.

Estimated extent:¹ Pre-clearing 80000 ha; Remnant 2021 10000 ha

VM class: Of concern

Biodiversity status: Of concern

Biodiversity status notes:

Regional ecosystem 4.9.18

Description: Mixed low open woodland to woodland, including a combination of the species *Heliodendron basalticum*, *Corymbia terminalis*, *Ventilago viminalis*, *Atalaya hemiglauc*a, *Lysiphyllum carronii* and *Eucalyptus melanophloia*. Other canopy species include *Acacia pendula*, *Eucalyptus populnea*, *A. cambagei*, *A. tephрина*, and *A. harpophylla*. Scattered low shrubs occur, but a well-defined low shrub layer is not developed. The ground layer is seasonally variable, and composed of grasses and forbs. Occurs on flat to gently undulating plains formed from fresh Cretaceous sediments. Associated soils are generally shallow to moderately deep grey and brown cracking clays and minor texture contrast soils. Ironstone and lime occur in the profile. Not a Wetland. (BVG1M: 27a).

Short description: *Heliodendron basalticum* and mixed species, including *Ventilago viminalis*, *Corymbia terminalis*, *Lysiphyllum carronii* on Cretaceous sediments

Supplementary descriptions: Turner et al. (1978) T1 (LU 9); Turner et al (1993) T3 (LU 51)

Subregions: 4, 5, (11.26), (6.6), (10.4)

Protected areas:

Extent in reserves: No representation

Wetland: Not a Wetland

Special values: 4.9.18: Relatively high fauna and flora diversity compared to surrounding grassland.

Comments: 4.9.18: This ecosystem is typically heavily invaded by buffel grass (*Cenchrus ciliaris*).

Estimated extent:¹ Pre-clearing 243000 ha; Remnant 2021 233000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.19

Description: A mosaic of open grassland and groves of *Acacia harpophylla* low woodland. Areas of grassland are dominated by *Astrebla lappacea*, with other grasses including *Aristida latifolia*, *Enneapogon avenaceus* and *Panicum laevinode*. Scattered trees and shrubs such as *Acacia harpophylla*, *A. pendula* and *Alectryon oleifolius* commonly occur. Occurs on gently undulating plains formed from Cretaceous sediments sometimes with a covering of Tertiary deposits. Associated soils are deep red clays and texture ranging from light to heavy. Scattered gravel is common. Not a Wetland. (BVG1M: 25a).

Short description: Clumps of *Acacia harpophylla* low woodland to tall shrubland with *Astrebla* spp. grassland on Cretaceous sediments sometimes with a covering of Tertiary deposits

Supplementary descriptions: Mills (1980), H5 (LU 54); Neldner (1984), 28a

Subregions: 4, (6.9)

Protected areas: Idalia NP

Extent in reserves: Medium

Wetland: Not a Wetland

Special values: 4.9.19: Potential habitat for NCA listed species: *Eremophila stenophylla*, *Ptilotus brachyanthus*.

Comments: 4.9.19: *Acacia harpophylla* trees are often concentrated around gilgai. Recycling has resulted in massive build-up of nutrients around *A. harpophylla* trees (Mills 1980).

Estimated extent:¹ Pre-clearing 26000 ha; Remnant 2021 23000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

Regional ecosystem 4.9.20

Description: *Astrebla lappacea* tussock grassland, commonly with *Aristida latifolia* and *Panicum decompositum*. Sparsely scattered low shrubs and low trees may occur. Short-lived grasses such as *Iseilema* spp. and *Dichanthium* spp. and ephemeral forbs vary in abundance with seasonal conditions. Winter rain favours the forbs, while summer rainfall promotes the growth of grasses. Occurs on flat to gently undulating plains formed from fine grained sediments. Soils generally deep grey and brown, strongly self-mulching cracking clays with ashy surface soils. Not a Wetland. (BVG1M: 30b).

Short description: *Astrebla lappacea* +/- *Aristida latifolia* +/- *Panicum decompositum* tussock grassland on Cretaceous sediments with ashy soils

Supplementary descriptions: Turner et al. (1978), F1 F2; Wilson and Purdie (1990a), F1; Neldner (1991), 42a; Turner et al. (1993), F1, F2, F6

Subregions: 5, 4, 3, (2), (5.4), (10.2), (10.4), (5.5), (11.26), (10.1), (6.6)

Protected areas: Diamantina NP

Extent in reserves: Low

Wetland: Not a Wetland

Special values: 4.9.20: Potential habitat for NCA listed species: *Picris barbarorum*.

Comments: 4.9.20: This vegetation association is known locally as 'ashy downs'.

Estimated extent:¹ Pre-clearing 1279000 ha; Remnant 2021 1270000 ha

VM class: Least concern

Biodiversity status: No concern at present

Biodiversity status notes:

¹ Estimated extent is from the current released version of the pre-clearing and remnant regional ecosystem mapping. Figures are rounded for simplicity. For more precise estimates, including breakdowns by tenure and other themes see remnant vegetation in Queensland (<https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/remnant-vegetation/>)

² Superseded: Revision of the regional ecosystem classification removed this regional ecosystem code from use. It is included in the regional ecosystem description database because the RE code may appear in older versions of RE mapping and the Vegetation Management regulation.