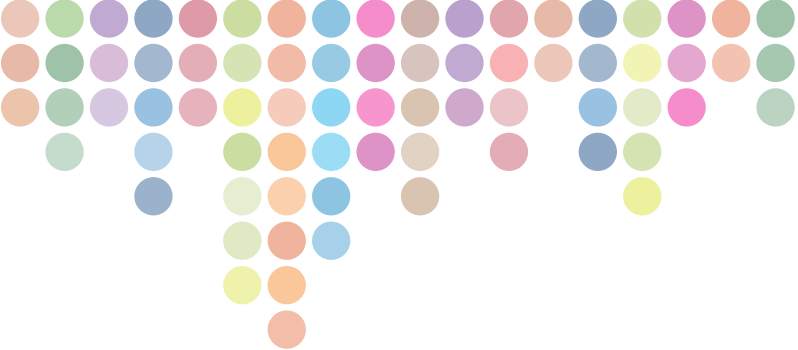
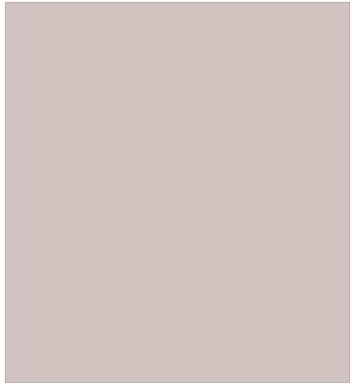
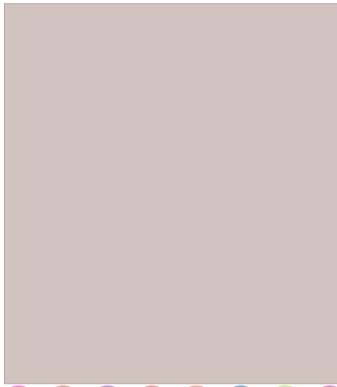
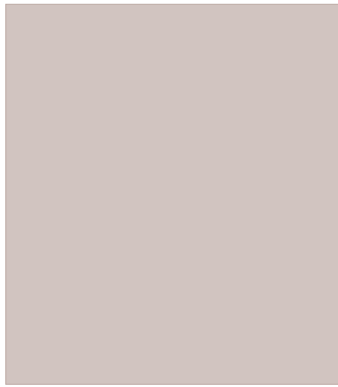


Grazing land types of the Gympie district

by Adam Logan, Graeme Elphinstone and Brad Wedlock



Grazing land types of the Gympie District

These grazing land type sheets have been developed as part of the Gympie District FarmFLOW project, a joint project between the Department of Employment, Economic Development and Innovation (DEEDI) and the Mary River Catchment Co-ordinating Committee (MRCCC) that focuses on sustainable farming practices in the district.

The area covered by these grazing land type sheets includes the Mary River catchment and its sub-catchments including Glastonbury and Widgee Creeks to the west, Amamoor Creek in the south, Curra Creek in the north and the upper reaches of the Tinana and Coondoo Creek sub-catchments in the east. It also incorporates the Kin Kin Creek sub-catchment of the Noosa River catchment.

Each grazing land type represents a combination of vegetation, soil and geology that have distinctive pasture production characteristics. As different land types require different management practices, this information can be applied when planning infrastructure, grazing strategies and sown pasture species. The sheets each have a representative photo to aid in landholder recognition.

This publication has been compiled by Adam Logan and Graeme Elphinstone of DEEDI and Brad Wedlock of MRCCC using a variety of sources including local landholder knowledge and several land resource references, including the *Atlas of Australian Soil*, Department of Natural Resources' *Land resource assessments* and the Noosa and Widgee Shire handbooks. The project team has extensively ground-truthed the sheets to ensure their accuracy and usefulness.

The project team gratefully acknowledges the contribution of Ernie Rider of the Department of Environment and Resource Management. A list of references is provided at the end of this document for those wishing to access more in-depth information.

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Grazing land types of the Gympie district

by Adam Logan, Graeme Elphinstone and Brad Wedlock

Blue gum flats

**Flooded gum and fringing rainforest
on creek flats**

Rainforest on krasnozems

**Gympie messmate and tall open
forest on phyllites**

Open forest on shales

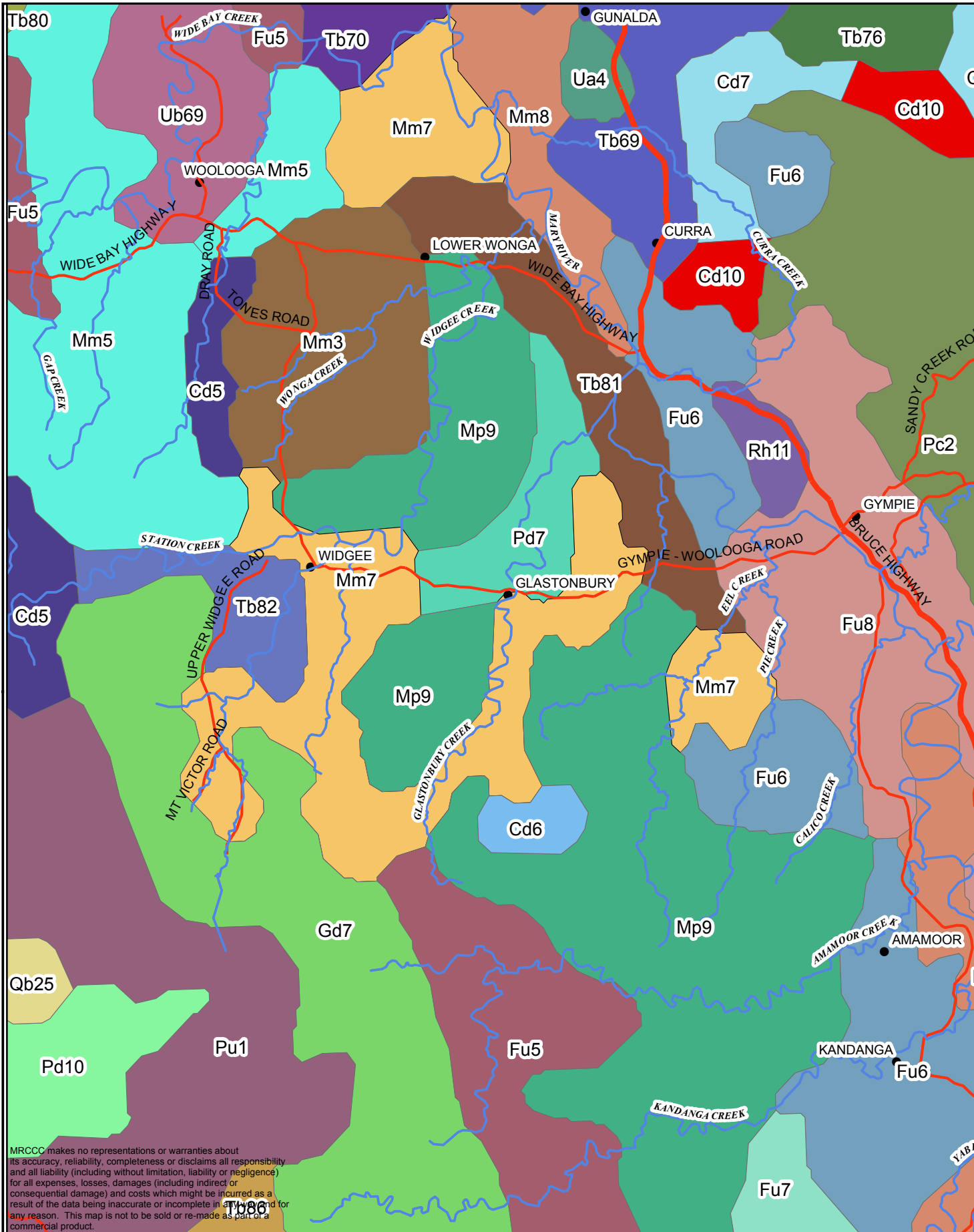
**Open forest on volcanics and
serpentinites**

Open forest on coastal sandstones

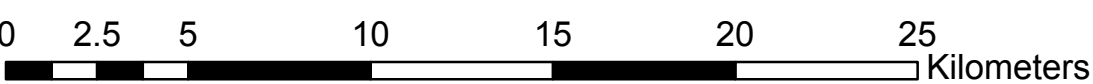
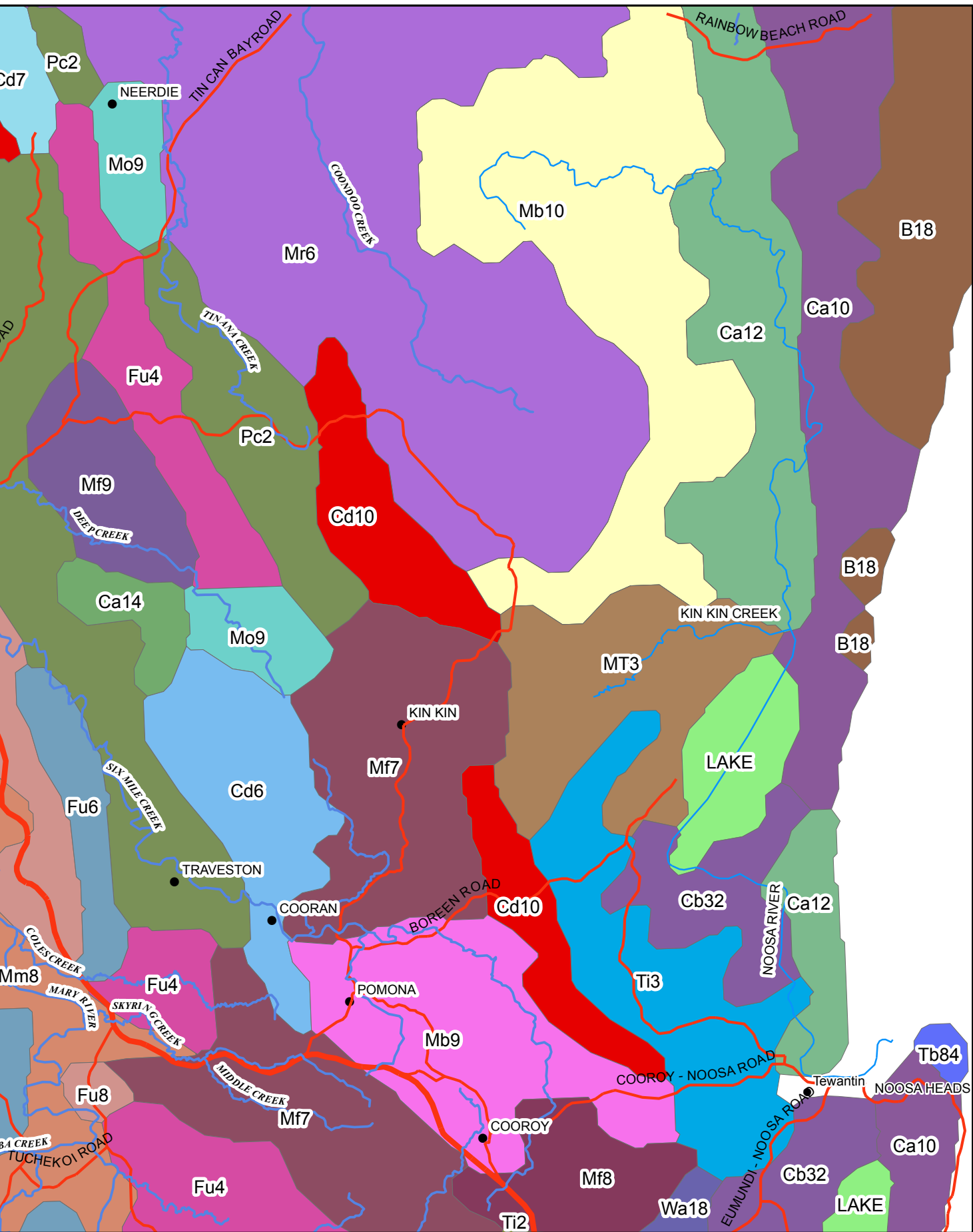
Sandy coastal plains

**Gum-topped box and spotted gum
on duplex soils**

Spotted gum ridges



Atlas of Australian Soils Landscape Units of the Gympie District



Geographic Coordinate System:
GCS_GDA_1994_Zone 56



Blue gum flats

Grazing land types – Gympie district

Vegetation	Blue gum, rough bark apple, river oak, swamp box, tea tree, figs, weeping lilly pilly, bottlebrush and mat rush Includes fringing riparian rainforest species
Land form	Floodplains, relict terraces, creek flats and freshwater wetlands
Soil description	Well structured alluvial soil Light to medium clays Variable depending on parent material Moisture holding capacity: high Internal drainage: usually good, waterlogging may be a problem in flood events Inherent soil fertility: high pH: slightly acid to neutral
Land use	Extensively cleared for dairying and cropping Predominant grazing enterprises are beef breeding and fattening and dairying
Native/ *naturalised pastures	3P: kangaroo grass, forest bluegrass, *paspalum, *kikuyu, *pioneer Rhodes, *green panic 2P: scented-top, Queensland blue couch 1P: *matgrass, blady grass, *bahia grass, pitted bluegrass, wiregrasses Legumes: *white clover
Sown grass/ legume pastures	3P: paspalum, kikuyu, pangola, Callide Rhodes Legumes: white clover, wynn cassia
Current weed problems	Camphor laurel, Chinese elm, castor oil bush, lantana, wild tobacco tree, cats-claw creeper, madeira vine, bracken fern, noogoora burr, annual ragweed, giant rats tail grass, giant Parramatta grass.

Estimated production (based on 'A' land condition and Gympie's 1126 mm average annual rainfall)	Stocking rates Native/naturalised: 1.5–2 ha/AE Sown grass/legume: 0.8–1.5 ha/AE 1 AE = 450 kg live weight animal Pasture dry matter production: 6000 to 8000 kgDM/ha/year Safe pasture utilisation rate: 40%
Erosion hazard	Pastures: low Cultivated land: high risk from flooding Stream banks: susceptible to scouring and slumping during flood events
Inherent salinity/sodicity	Low salinity, non-sodic

Land resource reference

Atlas of Australian Soils: Landscape unit Mm8

Land Resources Bulletin: Lowlands–Curra to Imbil–Soils on alluvial plains

Soil classification

Australian Soil Classification: dermosols and brown ferrosols

Great Soil Groups: prairie soils

Regional ecosystems

12.3.1 – Gallery rainforest (notophyll vine forest) on alluvial plains (endangered)

12.3.2 – Flooded gum tall open forest on alluvial plains (of concern)

12.3.7 – Blue gum, red bottlebrush, river sheoak fringing forest (not of concern)

12.3.11 – Blue gum, grey ironbark, pink bloodwood open forest on alluvial plains (of concern)

Conservation features

Riparian zone is habitat for several threatened aquatic species including the Mary River cod, Mary River turtle and Queensland lungfish. This grazing land type provides essential habitat for the following threatened species: Coxen's fig parrot, giant-barred frog and cascade tree frog.



Location—occurs along the Mary River and its tributaries throughout the Gympie district

Flooded gum and fringing rainforest on creek flats

Grazing land types – Gympie district

Vegetation	Flooded gum, weeping lillypilly, Francis' water gum, brush box, blue gum, turpentine, figs, grey and white handlewoods, piccabeen and cabbage palms, mat rush and rainforest shrubs
Land form	Narrow creek flats and low terraces; includes freshwater wetlands
Soil description	Alluvial loams, silty loams and silty clay loams Moisture holding capacity: high Internal drainage: medium to poor (frequently waterlogged) Inherent soil fertility: moderate to high pH: moderately acid
Land use	Extensively cleared for dairying Predominant grazing enterprises are beef breeding and fattening, dairying
Native/ *naturalised pastures	3P: *paspalum, *pioneer Rhodes, kangaroo grass, *kikuyu 2P: scented top, Queensland blue couch, *para grass, *signal grass 1P: blady grass, *matgrass, *sour paspalum, *tall paspalum, *bahia grass, *Russell River paspalum Legumes – *white clover, *Korean clover
Sown grass/ legume pastures	3P: kikuyu, paspalum, setaria (Nandi and Narok), katambora and Callide Rhodes, Bisset bluegrass, pangola Legumes: Shaw vigna, villo mix, white clover, lotononis, maku lotus
Current weed problems	Camphor laurel, Chinese elm, broad-leaved pepperina, lantana, groundsel bush, wild tobacco tree, cats-claw creeper, madeira vine, bracken fern, Singapore daisy, fireweed, giant rats tail grass, broadleaf paspalum

Estimated production (based on 'A' land condition and Kin Kin's 1498 mm average annual rainfall)	Stocking rates Native/naturalised: 1.5 ha/AE Sown grass/legume: 0.8 ha/AE 1 AE = 450 kg live weight animal Pasture dry matter production: 8000 to 9000 kgDM/ha/year Safe pasture utilisation rate: 40%
Erosion hazard	Pastures: low Cultivated land: high risk from flooding Stream banks: susceptible to scouring and slumping during flood events
Inherent salinity/sodicity	Low salinity, may be sodic

Land resource reference

Land Resources Bulletin: Lowlands Curra to Imbil – soils on alluvial plains

Soil classification

Australian Soil Classification: brown, yellow or grey dermosols

Great Soil Groups: alluvial soils

Regional ecosystems

12.3.1 – Gallery rainforest (notophyll vine forest) on alluvial plains (endangered)

12.3.2 – Flooded gum tall open forest on alluvial plains (of concern)

12.9-10.1 – Shrubby open forest often with red stringybark, flooded gum, swamp mahogany and pink bloodwood on sedimentary rocks (of concern)

Conservation features

Riparian zone is habitat for the endangered Mary River cod (Mary Catchment only). This grazing land type provides essential habitat for the following threatened species: Coxen's fig parrot, giant-barred frog and cascade tree frog.



Location—occurs along creeks in the high rainfall (>1400 mm) zone east of the Mary River e.g. Pomona, Kin Kin, Goomboorian, Cedar Pocket districts

Rainforest on krasnozems

Grazing land types – Gympie district

Vegetation	Tall closed forest—brush box, crows and bumpy ash, hoop and bunya pine, white and red cedar, flooded gum, lignum-vitae, figs, tulip oaks, giant stinging tree, macaranga, vines and tree-ferns No grassy understorey	Current weed problems	Camphor laurel, lantana, groundsel bush, wild tobacco tree, bracken fern, blue morning glory, cats-claw creeper, madeira vine, broadleaf paspalum
Land form	Mountains, hills and valleys	Estimated production <i>(based on 'A' land condition and Gympie's 1126 mm average annual rainfall)</i>	Stocking rates Native/naturalised: 1.5–2 ha/AE Sown grass/legume: 0.5–1 ha/AE <i>1 AE = 450 kg live weight animal</i> Pasture dry matter production: 7000 to 9000 kgDM/ha/year Safe pasture utilisation rate: 35%
Soil description	Deep, red, friable clay loam overlying a red clay subsoil Derived from volcanic rocks Moisture holding capacity: low to moderate Internal drainage: well drained permeable soils Inherent soil fertility: high pH: moderately to strongly acid	Erosion hazard	Pastures: low Cultivated land: very high Steeper slopes: prone to land slips
Land use	Extensively cleared for dairying, horticultural cropping and hoop pine plantation forestry Predominant grazing enterprises are beef breeding and fattening, dairying	Inherent salinity/sodicity	Very low salinity, non-sodic
Native/naturalised pastures	3P: kangaroo grass, *paspalum, *kikuyu, *pioneer Rhodes, *green panic, forest bluegrass 2P: *molasses grass, *hamil guinea 1P: *matgrass, *sour paspalum, blady grass Legumes: *white clover, *glycine	Land resource reference	Atlas of Australian Soils: Landscape units Mp9 and Mo9
Sown grass/legume pastures	3P: paspalum, kikuyu, Callide Rhodes, green and Gatton panic Legumes: white clover, Shaw vigna, glycine	Soil classification	Australian Soil Classification: red ferrosols Great Soil Groups: krasnozems
		Regional ecosystems	12.11.10 — Notophyll vine forest ± hoop pine on metamorphics ± interbedded volcanics (not of concern) 12.8.8 – Flooded gum tall open forest on Cainozoic igneous rocks (of concern) 12.8.13 – Hoop pine complex microphyll vine forest on Cainozoic igneous rocks (of concern)
		Conservation features	This grazing land type is habitat for the following threatened fauna species: Black breasted button quail and Richmond birdwing butterfly; and a number of threatened rainforest species including two species of macadamia.



Location—Amamoor north to Glastonbury. Pockets east of Gympie occur at Upper Deep Creek, Goomboorian, Wolvi and Mothar Mountains

Gympie messmate and tall open forest on phyllites

Grazing land types – Gympie district

Vegetation	Gympie messmate, grey ironbark, grey gum, pink bloodwood, brush box, tallwood, blue gum, flooded gum, scrubby understorey
Land form	Steep hilly to hilly terrain on convex hills and narrow creek flats
Soil description	<p>Yellow and red friable earths on slopes Loamy red friable earths on fans and lower slopes, yellow and red clay subsoils Derived from phyllitic shales</p> <p>Moisture holding capacity: moderate–high</p> <p>Internal drainage: medium</p> <p>Inherent soil fertility: moderate</p> <p>pH: moderately acid</p>
Land use	Extensively cleared for grazing, horticultural row and tree crops, and farm forestry Predominant grazing enterprises are beef breeding and fattening, dairying
Native/ *naturalised pastures	<p>3P: kangaroo grass, *paspalum, *pioneer Rhodes</p> <p>2P: scented top, Queensland blue couch, *hamil guinea, *signal grass, *kazungula setaria, *molasses grass</p> <p>1P: blady grass, pitted blue, native rats tail grasses, *matgrass, *sour paspalum, *tall paspalum</p>
Sown grass/legume pastures	<p>3P: setaria (Nandi and Narok), katambora and Callide Rhodes, green and gatton panic, Bisset bluegrass, kikuyu, pangola</p> <p>Legumes: Shaw vigna, villo mix, white clover, stylos, lotononis, glycine, siratro</p>
Current weed problems	Camphor laurel, Chinese celtis, <i>Pinus</i> wildings, broad-leafed pepperina, lantana, groundsel bush, wild tobacco tree, cats-claw creeper, bracken fern, giant rats tail grass, broadleaf paspalum

Estimated production (based on 'A' land condition and Kin Kin's 1498mm average annual rainfall)	<p>Stocking rates Native/naturalised: 2 ha/AE</p> <p>Sown grass/legume: 0.8–1 ha/AE 1 AE = 450 kg live weight animal</p> <p>Pasture dry matter production: 6000 to 8000 kgDM/ha/year</p> <p>Safe pasture utilisation rate: 30%</p>
Erosion hazard	<p>Pastures: low</p> <p>Cultivated land: high risk</p>
Inherent salinity/sodicity	Very low

Land resource reference

Atlas of Australian Soils: Landscape units Mf 7, Mf9, Mo9 and Pc2 (deeper versions)

Soil classification

Australian Soil Classification: dermosols and brown ferrosols

Great Soil Groups: xanthozems, red and yellow podzolics

Regional ecosystems

12.11.16 – Tall open forest with Gympie messmate on metamorphics ± interbedded volcanics (endangered)

12.11.5 – Open forest complex with spotted gum, grey ironbark, grey gum on metamorphics ± interbedded volcanics (not of concern)

Conservation features

Gympie messmate is endemic to the Gympie district. A number of threatened rainforest plant species are associated with this grazing land type.



Location—occurs extensively in the high rainfall (>1400 mm) zone east of the Mary River around Pomona, Kin Kin, Goomboorian and Cedar Pocket districts

Open forest on shales

Grazing land types – Gympie district

Vegetation	Brush box, spotted gum, Moreton Bay ash, grey ironbark, smooth-bark apple, rough-bark apple, blue gum, grey gum, gum-topped box. Shrubby understorey of brush box, forest oak, wattle and <i>Acrotriche</i>
Land form	Low hilly, hilly, to steep hilly terrain
Soil description	Leached loams and red podzolics derived from phyllites and shales Leached loams and hard-setting loamy soils overlying red clayey subsoils (texture contrast soils) Weathered rock throughout profile Moisture holding capacity: low Internal drainage: moderate Inherent soil fertility: low pH: moderately acid
Land use	Selectively cleared for dairying and pineapples Predominant grazing enterprises are beef breeding and growing
Native/ *naturalised pastures	3P: black speargrass, kangaroo grass, *pioneer Rhodes, *setaria 2P: barbwire grass, signal grass, native panic, *hamil guinea 1P: blady grass, *matgrass, pitted bluegrass, wiregrasses, native rats tail grasses
Sown grass/ legume pastures	3P: katambora Rhodes, Bisset bluegrass, paspalum, pangola Legumes: lotononis, villo mix, temprano and seca stylos, wynn cassia, white clover
Current weed problems	Wattle regrowth, creeping lantana, groundsel, bracken fern, giant rats tail grass

Estimated production
(based on 'A' land condition and Gympie's 1126 mm average annual rainfall)

Stocking rates

Native/naturalised: 3–6 ha/AE

Sown grass/legume: 1.5–3 ha/AE
1 AE = 450 kg live weight animal

Pasture dry matter production: 3000 to 4500 kgDM/ha/year

Safe pasture utilisation rate: 25%

Erosion hazard

Pastures: low

Cultivated land: high risk

Inherent salinity/ sodicity

Usually low

Land resource reference

Atlas of Australian Soils: Landscape units Fu4, Fu5, Fu6, Fu8, Pd7 and Pc2 (shallow versions)

Soil classification

Australian Soil Classification: chromosols, kurosols, brown ferrosols

Great Soil Groups: leached loams, red podzolics

Regional ecosystems

12.11.3 – Open forest generally with grey ironbark and grey gum on metamorphics ± interbedded volcanics (not of concern)

12.11.10 – Notophyll vine forest ± hoop pine on metamorphics ± interbedded volcanics (not of concern)



Location—Imbil to Amamoor, McIntosh Creek, North Deep Creek, Hyland Rd–Old Noosa Rd, (Tandur–Woondum district) and Bells Bridge – Curra

Open forest on volcanics and serpentinites

Grazing land types – Gympie district

Vegetation	Narrow-leaved ironbark, silver-leaved ironbark, blue gum, forest oak, grassy woodland. Includes some vine scrub species Serpentinites are characterised by bloodwood, grasstrees and shrubby understorey	Estimated production (based on 'A' land condition and Gympie's 1126 mm average annual rainfall)	Stocking rates Native/naturalised: 3–4 ha/AE Sown grass/legume: 1.5–2 ha/AE 1 AE = 450 kg live weight animal Pasture dry matter production: 4500 to 5500 kgDM/ha/year Safe pasture utilisation rate: 30%
Land form	Undulating to hilly	Erosion hazard	Pastures: low Cultivated land: medium–high risk
Soil description	Prairie soils are friable dark brown, red brown and black clay loams to light clays, overlying yellowish brown or grey subsoils Serpentinites are characterised by high magnesium levels Frequent surface rock Moisture holding capacity: moderate–high Internal drainage: well drained Inherent soil fertility: moderate pH: slightly acid to neutral	Inherent salinity/sodicity	Low–moderate salinity, non-sodic
Land use	Moderately cleared for grazing and cropping Predominant grazing enterprises are beef breeding and fattening	Land resource reference	Atlas of Australian Soils: Landscape units Mm3, Mm7, Rh11 and Gd7 Soil classification Australian Soil Classification: dermosols Great Soil Groups: prairie soils
Native/*naturalised pastures	3P: kangaroo grass, black speargrass, forest bluegrass, tambookie, *paspalum, *pioneer Rhodes, *green panic. Native legumes include <i>Glycine</i> , <i>Rhynchosia</i> and <i>Zornia spp</i> 2P: native panic, Queensland bluegrass, scented top, *Angleton grass, *hamil guinea 1P: pitted blue, blady grass, *matgrass, native rats tail grasses, native love grasses	Regional ecosystems	12.11.3 – Open forest generally with grey ironbark and grey gum on metamorphics ± interbedded volcanics (not of concern) 12.11.15 – Ironbark and blue gum woodland with grasstrees on serpentinite (of concern) 12.11.10 – Notophyll vine forest ± hoop pine on metamorphics ± interbedded volcanics (not of concern)
Sown grass/legume pastures	3P: katambora Rhodes, Bisset bluegrass, Floren bluegrass, paspalum, green panic Legumes: siratro, seca, temprano and fine stem stylos, wynn cassia, white clover, lucerne	Conservation features	Woodland with grasstrees (<i>Xanthorrhoea johnsonii</i>) on serpentines
Current weed problems	Lantana, creeping lantana, giant rats tail grass		



Location—volcanics are found in the Glastonbury, Langshaw and Chatsworth localities while serpentinites are found in the Upper Amamoor and Kandanga areas

Open forest on coastal sandstones (hills)

Grazing land types – Gympie district

Vegetation	Grey gum, pink bloodwood, brush box, blue gum, forest oak, shrubby understorey
Land form	Rolling terrain, rises and steep hills on sandstones and dissected sandstones
Soil description	Hard setting acid yellow mottled soils on the lower slopes Acid yellow leached earths on hillslopes Shallow leached sands on rocky ridges Moisture holding capacity: very low Internal drainage: moderate Inherent soil fertility: very low pH: moderately acid to acid
Land use	Moderately cleared for dairying, beef breeding, pasture seed and some horticultural tree crops Predominant grazing enterprise is beef breeding
Native/ *naturalised pastures	3P: kangaroo grass, black speargrass, *pioneer Rhodes, *setaria 2P: barbwire grass, Queensland blue couch, *signal grass, *molasses grass 1P: *matgrass, blady grass, pitted bluegrass
Sown grass/ legume pastures	3P: pangola, katambora Rhodes, Bisset bluegrass, setaria 2P: hamil guinea Legumes: lotononis, stylos, villo mix, wynn cassia
Current weed problems	Camphor laurel, groundsel bush, bracken fern, African love grass, giant rats tail grass

Estimated production <i>(based on 'A' land condition and Kin Kin's 1498 mm average annual rainfall)</i>	Stocking rates Native/naturalised: 3–6 ha/AE Sown grass/legume: 1.5–2 ha/AE <i>1 AE = 450 kg live weight animal</i> Pasture dry matter production: 3500 to 4000 kgDM/ha/year Safe pasture utilisation rate: 20–25%
Erosion hazard	Pastures: low risk Horticulture tree crops: moderate risk
Inherent salinity/sodicity	Salinity low, may be sodic

Land resource reference

Atlas of Australian Soils: Landscape units Cd10 and T13

Soil classification

Australian Soil Classification: kurosols, podosols

Great Soil Groups: podzolics, earthy sands

Regional ecosystems

12.9-10.1 – Shrubby open forest often with red stringybark, flooded gum, swamp mahogany, pink bloodwood ± turpentine on sedimentary rocks. Coastal (of concern)

12.9-10.17 – Open forest complex of white mahogany, grey gum, grey ironbark ± pink bloodwood (not of concern)



Location—the upper catchment area of the Sandy, Cooloothin, Ringtail, Cooroibah and Wooroi Creeks which are all tributaries of the Noosa River

Sandy coastal plains

Grazing land types – Gympie district

Vegetation	Paper-barked tea tree, blue gum, pink bloodwood, scribbly gum, Moreton Bay ash, rough-bark apple, swamp box, cabbage tree palm and wallum understorey species including sword sedge	Estimated production (based on 'A' land condition and Como's 1687 mm average annual rainfall)	Stocking rates Native/naturalised: 4–5 ha/AE Sown grass/legume: 1–1.5 ha/AE 1 AE = 450 kg live weight animal
Land form	Alluvial plains including sand plains and freshwater wetlands Gently to strongly undulating old coastal plains on sandstones	Erosion hazard	Pasture dry matter production: 5000 to 7000 kgDM/ha/year Safe pasture utilisation rate: 25–30%
Soil description	Alluvial plains: acidic grey leached earths, leached sands, and acid humic gley soils (on low lying flats) Old coastal plain: acid yellow earths and hard acid yellow mottled soils Moisture holding capacity: low Internal drainage: moderate to poor, flats are prone to waterlogging Inherent soil fertility: very low pH: strongly acid	Inherent salinity/sodicity	Pastures: low risk Horticulture: high risk Low salinity, may be sodic
Land use	Extensively cleared for grazing, pasture seed, horticulture, field cropping and slash pine plantation forestry Predominant grazing enterprises are beef breeding and growing	Land resource reference	Atlas of Australian Soils: Landscape units MT3, Cb32, Mb10, T13 and Mr6 Soil classification Australian Soil Classification: kurosols, podosols, hydrosols Great Soil Groups: alluvial soils, podzolics, podzols
Native/naturalised pastures	3P: *paspalum, *pioneer Rhodes, kangaroo grass, *para grass, *pangola 2P: barbwire grass, Queensland blue couch, *signal grass, *kazungula setaria 1P: *matgrass, blady grass, *sour paspalum, *tall paspalum, pitted bluegrass	Regional ecosystems	12.3.11 – Blue gum, grey ironbark and pink bloodwood open forest to woodland often containing shrubby understorey (of concern). 12.3.6 – Paperbark, blue gum, swamp box ± pink bloodwood open-forest to woodland with a grassy ground layer (not of concern) 12.9-10.4 – Scribbly gum, pink bloodwood, paperbark open forest-woodland (not of concern) 12.5.12 – Scribbly gum, grey gum, paperbark woodland to open forest with heathy understorey (of concern)
Sown grass/legume pastures	3P: pangola, setaria (Nandi and Narok), Callide and katambora Rhodes, Bisset bluegrass Legumes: lotononis, maku lotus, Shaw vinya, villo mix, white clover	Conservation features	This grazing land type is habitat for the following threatened fauna species: black breasted button quail, wallum froglet, wallum sedgefrog, wallum rocketfrog and Cooloola sedgefrog; and the threatened plant species <i>Macrozamia pauli-giulielmi</i> .
Current weed problems	<i>Pinus</i> wildings, groundsel bush, bracken fern, giant rats tail grass, African love grass		



Location—includes the Toolara pine plantations on the coastal plains east of Tinana Creek and extends to the freshwater alluvial plains west and south of Lake Cootharaba

Gum-topped box and spotted gum on duplex soils

Grazing land types – Gympie district

Vegetation	Gum-topped box, spotted gum, blue gum, grey ironbark, Moreton Bay ash, peppermint gum, rough-bark apple, wattle, dogwood and grassy understorey
Land form	Low rounded hilly terrain
Soil description	Hard setting/weakly structured texture contrast loams overlying yellow mottled clay subsoils Ironstone gravel often found in the profile Derived from shales, soft sandstones and andesite Moisture holding capacity: low Internal drainage: poor due to slowly permeable subsoil Inherent soil fertility: very low pH: slightly acid
Land use	Grazing and native hardwood forestry; unsuitable for cropping Predominant grazing enterprise is growing store cattle
Native/ *naturalised pastures	3P: kangaroo grass, black speargrass, *paspalum, *pioneer Rhodes 2P: barbwire grass, Queensland blue couch 1P: native lovegrasses, *matgrass, blady grass, pitted blue, poverty grass, wiregrasses, native rats tail grasses
Sown grass/legume pastures	Generally unsuitable for intensive pasture development; low-key pasture establishment only 3P: katambora Rhodes, paspalum, pangola, premier digit, Bisset bluegrass and hatch bluegrasses Legumes: lotononis, wynn cassia, seca and temprano stylos
Current weed problems	Groundsel bush, lantana, mother of millions, fireweed, giant rats tail grass

Estimated production <i>(based on 'A' land condition and Theebine's 978 mm average annual rainfall)</i>	Stocking rates Native/naturalised: 5–7 ha/AE Sown grass/legume: 2–3 ha/AE <i>1 AE = 450 kg live weight animal</i> Pasture dry matter production: 3000 to 4000 kgDM/ha/year Safe pasture utilisation rate: 20%
Erosion hazard	Highly susceptible to gully erosion when the dispersive sub-soil is exposed
Inherent salinity/sodicity	Sodic subsoil. Over-clearing may lead to salinity outbreaks on the flats

Land resource reference

Atlas of Australian Soils: Landscape units Tb69, Tb70 and Ua4

Soil classification

Australian Soil Classification: brown sodosol

Great Soil Groups: soloths

Regional ecosystems

12.11.18 – Gum-topped box open forest on metamorphics ± interbedded volcanics (not of concern)

12.11.3 – Open forest generally with grey ironbark, grey gum on metamorphics ± interbedded volcanics including gum-topped box (not of concern)

12.11.5 – Open forest complex with spotted gum, grey ironbark, grey gum on metamorphics ± interbedded volcanics including gum-topped box (not of concern)

Conservation features

This grazing land type is an important shelter and food source for koalas. These woodlands provide important corridors through the landscape for both resident and dispersing fauna.



Location—Sexton, Harvey Siding, north of Bells Bridge to Curra, Gunalda and Theebine

Spotted gum ridges

Grazing land types – Gympie district

Vegetation	Eucalypt open forest—spotted gum, brush box, Moreton Bay ash, grey ironbark, forest oaks, wattles, shrubby understorey including dogwood
Land form	Ridges, hillcrests and steep slopes
Soil description	Shallow gravelly loams overlying shales and phyllites Shallow sandy loams on sandstone Exposed rock is common Moisture holding capacity: very low; very high runoff potential Internal drainage: well drained Inherent soil fertility: low; very low organic matter pH: moderately acid
Land use	Native hardwood forestry and beef grazing Predominant grazing enterprise is growing store cattle
Native/ *naturalised pastures	3P: kangaroo grass, black spear grass 2P: barbwire grass 1P: pitted bluegrass, wiregrasses, native lovegrasses, blady grass, cockatoo grass, native rats tail grasses
Sown grass/ legume pastures	3P: unsuitable for intensive pasture development; low-key legume establishment only Legumes: seca and temprano stylos, wynn cassia
Current weed problems	Wattle regrowth, lantana, bracken fern, mother of millions, giant rats tail grass

Estimated production (based on 10 m ² of tree basal area and Gympie's 1126 mm average annual rainfall)	Stocking rates Native/naturalised: 8–10 ha/AE 1 AE = 450 kg live weight animal Pasture dry matter production: up to 1500 kgDM/ha/year Safe pasture utilisation rate: 10–20%
Erosion hazard	Very high risk of gully erosion
Inherent salinity/sodicity	Salinity usually low, subsoil may be sodic

Land resource reference

Atlas of Australian Soils: Landscape units Tb81 and Cd7

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Soil classification

Australian Soil Classification: kurosols, sodosols, chromosols

Great Soil Groups: soloths

Regional ecosystems

12.11.3 – Open forest generally with grey ironbark and grey gum on metamorphics ± interbedded volcanics (not of concern)

12.11.5 – Open forest complex with spotted gum, grey ironbark and grey gum (not of concern)

Conservation features

This grazing land type is an important shelter and food source for koalas. These woodlands provide important corridors through the landscape for both resident and dispersing fauna.

This grazing land type is habitat for threatened plant species including: *Acomis acoma* (daisy), *Marsdenia coronata* (vine) and *Sophora fraseri* (pea flower shrub).



Location—widespread on ridges throughout the district, e.g. Sexton, North Deep Creek, and in association with several other grazing landtypes

The following references provide more detailed information regarding geology, soils, vegetation, flora, fauna and pastures associated with these *Grazing land types*.

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