Coastal Burnett Region Plant Index

Common name	Scientific name	Page
forest bluegrass	*Bothriochloa bladhii*	CB02, CB03, CB05, CB07, CB08, CB09, CB11
forest red gum *see also* blue gum	*Eucalyptus tereticornis*	
giant rat's tail grass*	*Sporobolus pyramidalis, S. natalensis*	CB01, CB02, CB03, CB04, CB05, CB07, CB08, CB09, CB10, CB11, CB12
glycine*	*Neonotonia wightii*	CB11
golden beard grass	*Chrysopogon fallax*	CB09, CB10, CB12
grasstree	*Xanthorrhoea* species (including *X. johnsonii, X latifolia)*	CB06, CB10
green panic*	*Panicum maximum* var. *trichoglume*	CB11
grey box *see also* gum-topped box		
grey ironbark *see also* narrow-leaved ironbark		
groundsel bush*	*Baccharis halimifolia*	CB01, CB10, CB12
gum-topped box	*Eucalyptus moluccana*	CB02, CB04
hoop pine	*Araucaria cunninghamii*	CB05
humidicola*	*Brachiaria humidicola*	CB12
kangaroo grass	*Themeda triandra*	CB01, CB02, CB03, CB04, CB05, CB06, CB07, CB09, CB10, CB12
koronivia grass *see also* humidicola*		
lantana*	*Lantana camara*	CB03, CB05, CB06, CB07, CB09, CB10, CB11
leucaena	*Leucaena leucocephala*	CB08, CB11
Lloyd's mock olive	*Notelaea lloydii*	CB10
lotononis*	*Lotononis bainesii*	CB01, CB02, CB03, CB10, CB12
lovegrass	*Eragrostis* sp.	CB04, CB09
Moreton Bay ash	*Corymbia tessellaris*	CB02, CB08
narrow-leaved ironbark	*Eucalyptus crebra* (includes grey ironbark *E. drepanophylla*)	CB01, CB03, CB04, CB06, CB07, CB09, CB10
native chloris	*Chloris* species (including *C. divaricata, C. truncata, C. ventricosa*)	CB05
native sorghum	*Echinochloa turneriana*	CB08
pangola grass*	*Digitaria eriantha* subsp. *pentzii*	CB01, CB02, CB03, CB11, CB12

Common name	Scientific name	Page
paperbark tea tree	*Melaleuca quinquenervia*	CB12
paspalum*	*Paspalum dilatatum*	CB02
pink bloodwood	*Corymbia intermedia* Syn. *Eucalyptus intermedia*	CB08
pitted bluegrass	*Bothriochloa decipiens*	CB02, CB03, CB04, CB05, CB06, CB07, CB08, CB09, CB11
poverty grass	*Eremochloa bimaculata*	CB01, CB06, CB10, CB12
Queensland blue couch*	*Digitaria didactyla*	CB01, CB02, CB03, CB04, CB05, CB06, CB07, CB08, CB09, CB10, CB11, CB12
Queensland bluegrass	*Dichanthium sericeum*	CB02, CB05, CB07, CB08, CB11
Queensland peppermint	*Eucalyptus exserta*	CB01, CB10
rat's tail grasses	*Sporobolus* spp.	CB03, CB06, CB07
red ironbark	*Eucalyptus fibrosa* subspecies *fibrosa*	CB10
Rhodes grass*	*Chloris gayana* cvv. Callide, Katambora	CB01, CB02, CB03, CB05, CB07, CB08, CB09, CB11
rusty gum *see also* smooth-barked apple		
scentedtop	*Capillipedium parviflorum, C. spicigerum**	CB02, CB11
shrubby stylo/s*	*Stylosanthes scabra*	CB01, CB02, CB04, CB05, CB06, CB07, CB09, CB10
signal grass*	*Urochloa decumbens*	CB01, CB03, CB07, CB09
silver-leaved ironbark	*Eucalyptus melanophloia*	CB02, CB07, CB08
siratro*	*Macroptilium atropurpureum*	CB01, CB02, CB03, CB05, CB07, CB08, CB09, CB10, CB11
smooth-barked apple	*Angophora leiocarpa*	CB01, CB10
spotted gum	*Eucalyptus citriodora* subsp. *variegata*	CB04, CB06, CB09, CB10
stringybark	*Eucalyptus tindaliae, E. eugenioides*	CB01, CB10
supplejack	*Ventilago viminalis*	CB06
swamp foxtail	*Pennisetum alopecuroides*	CB02
swamp mahogany	*Eucalyptus robusta, Lophostemon suaveolens*	CB12
swamp orchid	*Phaius australis, P. tancarvilleae*	CB12
tambookie grass	*Hyparrhenia filipendula*	CB03, CB05, CB07, CB09

* Denotes non-native species

Bloodwood and stringybark (coastal plains)

Landform	Level to gently undulating plains and low hills.
Woody vegetation	Bloodwoods, stringybarks, narrow-leaved ironbark, grey ironbark, Queensland peppermint and smooth-barked apple.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Barbwire grass, black speargrass, kangaroo grass.
Intermediate	Queensland blue couch*, cockatoo grass.
Non-preferred	Poverty grass, blady grass.
Suitable sown pastures	Rhodes grass, creeping bluegrass, signal grass, pangola grass, lotononis, shrubby and Caribbean stylos, siratro, villomix.
Introduced weeds	Giant rat's tail grass, African lovegrass, groundsel bush.
Soil	Grey, red and yellow earths, soloths, solodics and podzols (kandosols, kurosols, sodosols).
Description	***Surface*:** Hard-setting; ***Surface texture*:** sandy loam; ***Subsoil texture*:** light sandy clay loam. Often ironstone gravel found throughout profile, and nodular pans may be present at depth.
Water availability	Medium
Infiltration	Poor to slow.
Drainage	Poorly drained.
Fertility	Low nitrogen; very low phosphorus.
Salinity	Non-saline
Sodicity	Non-sodic
pH	Slightly acid.

Grey earth

Depth (cm)	*Description*
0–10	Grey, sandy loam. Massive structure. Hard setting surface; pH 6.0. Gradual to …
10–65	… yellow mottled, yellow brown, light sandy clay loam. Massive structure. pH 6.3. Clear to …
65–85	… yellow and red mottled, yellow brown, light sandy clay loam. Massive structure. Many ferruginous nodules; pH 6.3. Sharp to ….
90–110	… very strongly cemented nodular sesquioxide pan.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 870 – 1018 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	2450 - 2520	30%	3.9 – 4.0
	19 TBA 45 FPC	420 - 430	30%	23
Sown			40% +fertiliser	

Enterprise

Breeding, growing, fattening.

Land use and management recommendations

- Suitable for pasture development provided maintenance fertiliser (super phosphate) is applied every 2–3 years.
- Suitable for cropping (cane).

Land use limitations

- Serious regrowth potential following disturbance.
- Low inherent fertility which needs to be corrected to maintain sown pastures.
- Not suitable for native of plantation forestry (suitable for fencing timber only).

Conservation features and related management

- Mature coastal woodlands can be rich in wildlife supporting sugar gliders, arboreal marsupials, hollow breeding birds, birds of prey and micro bats.
- Retention of ground litter provides important habitat for ground-dwelling reptiles.
- The small seasonal wetlands associated with this land type support an array of amphibians and aquatic invertebrates. De-stocking these areas during the growing season will be of benefit to pastures and wildlife.
- These woodlands have evolved with fire and are best managed with a range of fire regimes and intensities that result in a mosaic of habitat areas and feed areas. Too frequent, hot fires are damaging.
- Although currently not of concern, the larger regional ecosystems have been extensively cleared (and fragmented) for cropping, grazing and peri-urban development. Managing regrowth to link native vegetation remnants is desirable.

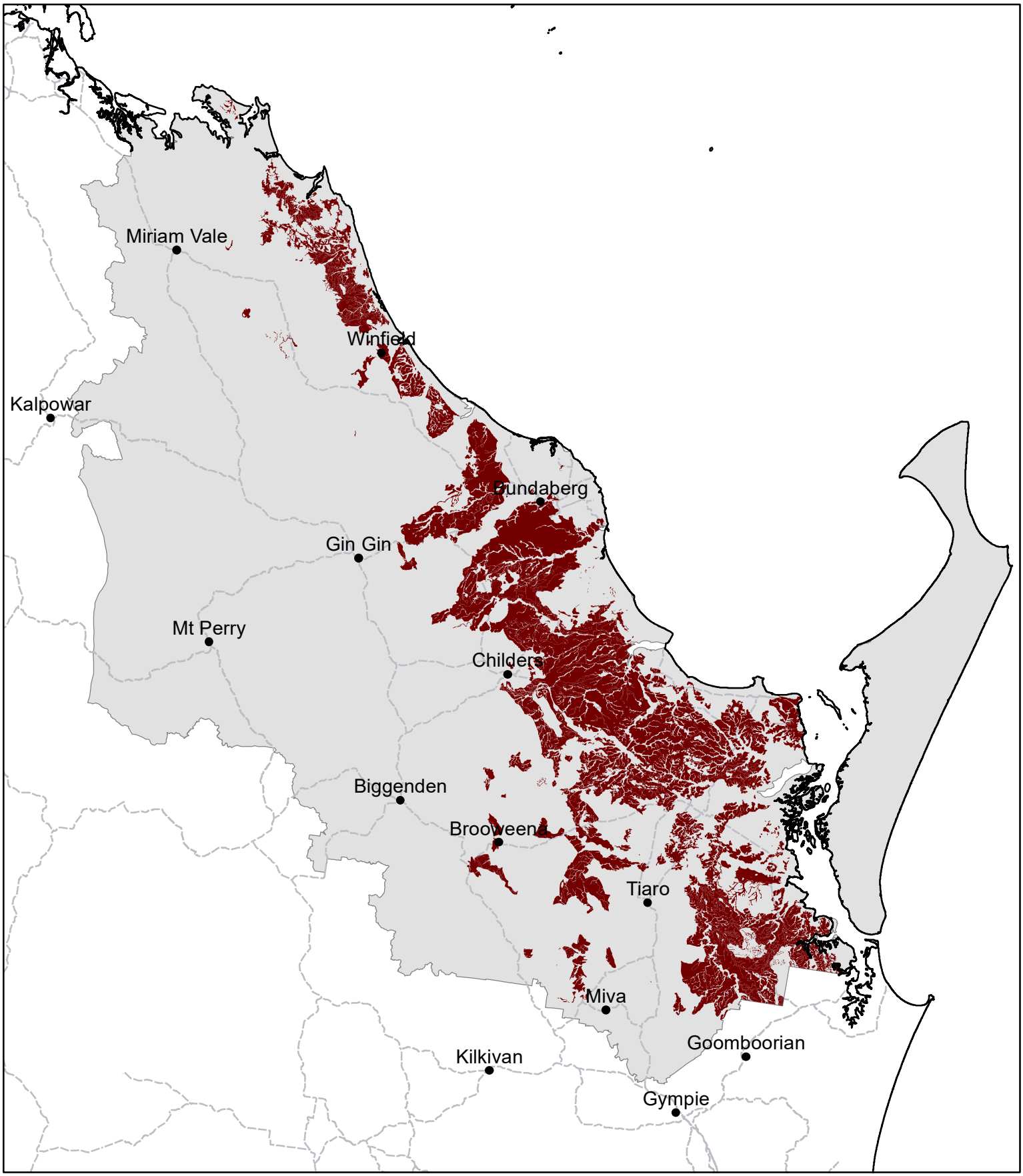
Regional Ecosystems

12.3.12, 12.3.15, 12.5.4, 12.5.5, 12.5.8, 12.5.11, 12.5.12, 12.9–10.21, 12.9-10.1x1, 12.9-10.9.

Land resource area

Coastal plains (Glanville *et al* 1991).

CB01 Bloodwood and stringybark (coastal plains)

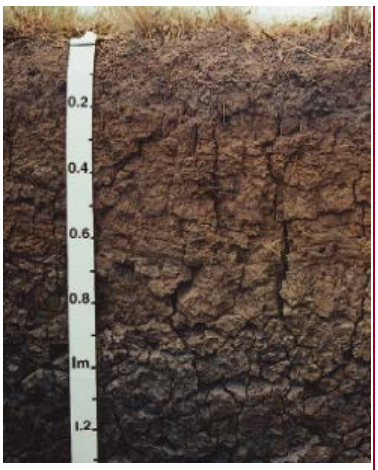


Area of land type in region: 15%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 71%
Median FPC: 45%
Median TBA: 19 m2/ha

Queensland Government

Blue gum flats

Landform	Level alluvial plains (moderately extensive).
Woody vegetation	Blue gum, Moreton bay ash, silver-leaved ironbark, gum-topped box.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Forest bluegrass, scentedtop, Queensland bluegrass, black speargrass, paspalum*, kangaroo grass.
Intermediate	Pitted bluegrass, Queensland blue couch*, Angleton grass*, bahia grass*.
Non-preferred	Wiregrasses, blady grass, swamp foxtail.
Suitable sown pastures	Creeping bluegrass, Rhodes grass, pangola grass, fine stem, shrubby and Caribbean stylos, siratro, lotononis.
Introduced weeds	Giant rat's tail grass, African lovegrass.
Soil	Coarse structured clays, alluvial loams and alluvial black earths (vertosol, rudosols).
Description	***Surface*:** May crack when dry; ***Surface texture*:** sandy clay; ***Subsoil texture*:** medium to heavy clay.
Water availability	High to medium (depending on soil depth and depth to sodic subsoil).
Infiltration	Moderate
Drainage	Poor internal and external drainage (can become waterlogged).
Fertility	Moderate total nitrogen; moderate phosphorus.
Salinity	Can contain saline subsoils (depending on parent material).
Sodicity	Can contain sodic subsoils (depending on parent material).
pH	Slight acidity, increasing at depth.



Coarse structure clay

Depth (cm)	*Description*
0–10	Dark brown, sandy clay; strong blocky structure; pH 6.0. Clear change to …
10–25	… brown, medium clay; strong blocky structure; some gravel; pH 7.5. Gradual change to …
25–65	… brown, medium clay; moderate coarse blocky structure, faint orange mottles; pH 6.0. Gradual change to …
65–140	… grey, heavy clay; moderate coarse lenticular structure, distinct orange mottles; pH 5.5.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 823 – 1018 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	4250 - 4570	35%	1.8 – 2.0
	17 TBA 41 FPC	2210 - 2470	35%	3.4 – 3.8
Sown			40%	

Enterprise

Breeding, growing and fattening.

Land use and management recommendations

- Extensively cleared for grazing and cropping.
- Suitable for sown pasture.
- Suitable for plantation timber.
- Remnant vegetation suitable for native hardwood production.

Land use limitations

- Flats become waterlogged during prolonged wet weather.
- Eucalypt regrowth can limit productivity.

Conservation features and related management

- While blue gum is common, few extensive, intact remnants remain. Tree hollows often found in large, old blue gums are important nesting sites and provide habitat for birds and marsupials.
- Blue gum regenerates readily in the absence of grazing and regular fire.
- Regrowth can be encouraged to allow remnants to expand and establish connection with other areas of remnant vegetation. Regrowth has hardwood potential.
- Many of the freshwater wetlands in the coastal Burnett are associated with this land type.

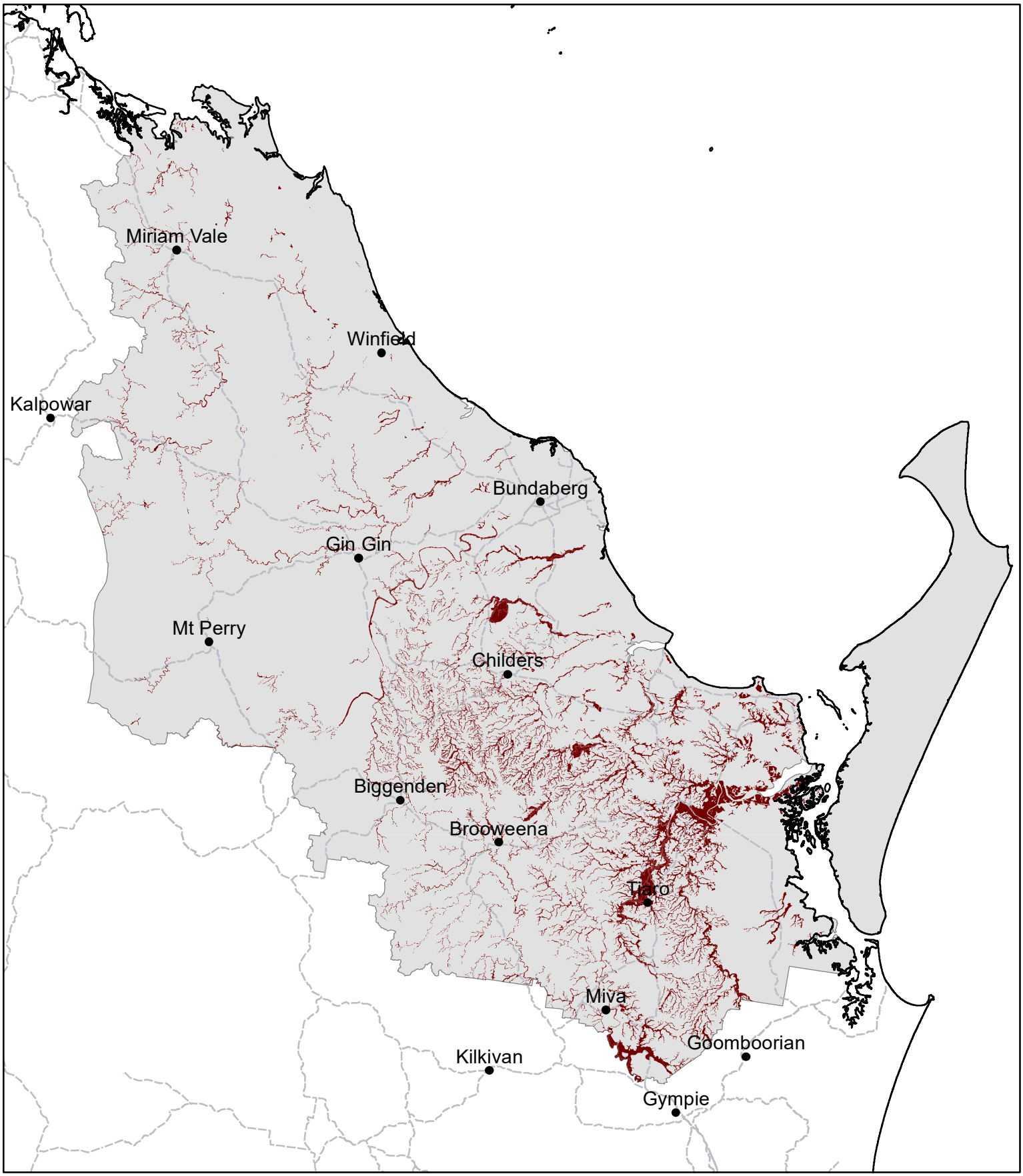
Regional Ecosystems

12.3.3d, 12.3.7, 12.3.7b, 12.3.7d, 12.3.11, 12.3.11a, 12.3.11b.

Land resource area

Alluvium (Glanville *et al* 1991).

CB02 Blue gum flats



Area of land type in region: 5%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 70%
Median FPC: 41%
Median TBA: 17 m2/ha

Queensland Government

Blue gum, ironbark and bloodwood slopes and hollows

Landform	Undulating to rolling rises and plains.
Woody vegetation	Blue gum, narrow-leaved ironbark, bloodwood and wattles.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Forest bluegrass, tambookie grass, black speargrass, kangaroo grass.
Intermediate	Pitted bluegrass, Queensland blue couch*, barbwire grass, thatch grass*, bahia grass*.
Non-preferred	Wiregrasses, bottlewasher grasses, rat's tail grasses.
Annuals	Annual chloris*.
Suitable sown pastures	Creeping bluegrass, Rhodes, signal, pangola grass, fine stem and shrubby stylos, siratro, lotononis, Wynn cassia.
Introduced weeds	Giant rat's tail grass, African lovegrass, lantana.
Soil	Yellow podzolic and soloths (kurosols).
Description	***Surface*:** Firm; ***Surface texture*:** sandy loam; ***Subsoil texture*:** clay loam to light clay.
Water availability	Medium
Infiltration	Good
Drainage	Slowly permeable, subsoil can impede drainage.
Fertility	Low to very low total nitrogen; variable phosphorus.
Salinity	Non-saline
Sodicity	Non-sodic
pH	Acidic

Yellow podzolic

Depth (cm)	*Description*
0–20	Brownish black, sandy loam. Massive structure. Firm surface. pH 6.0. Gradual to …
20–90	… light yellow brown, sandy loam to clay loam. Massive to weak blocky structure. pH 6.0–6.5. Clear to …
90–135	… red mottled, yellow, light clay. Weak to moderate angular blocky structure. pH 6.0.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 823 – 1000 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	2610 - 2630	35%	3.2
	19 TBA 45 FPC	490 - 860	35%	10 – 17
Sown			40%	

Enterprise

Breeding and growing.

Land use and management recommendations

- Extensive grazing.
- An important land type for native timber production.
- Sown pasture development suitable on lower slopes and hollows.

Land use limitations

- Significant eucalypt and wattle regrowth following clearing.
- High erosion risk during pasture establishment or following prolonged heavy grazing.
- Blue couch dominates in heavily grazed areas.
- Careful pasture management is required to avoid cassia dominance developing.

Conservation features and related management

- Extensively cleared for native pasture in some areas; relatively intact in others.
- These land types are generally grassy woodlands that provide habitat for larger marsupials. Hollow bearing habitat trees are important nesting sites for birds and arboreal mammals.
- Landscape health can be enhanced through appropriate fire regimes and grazing management that allows regrowth to develop into effective wildlife corridors.

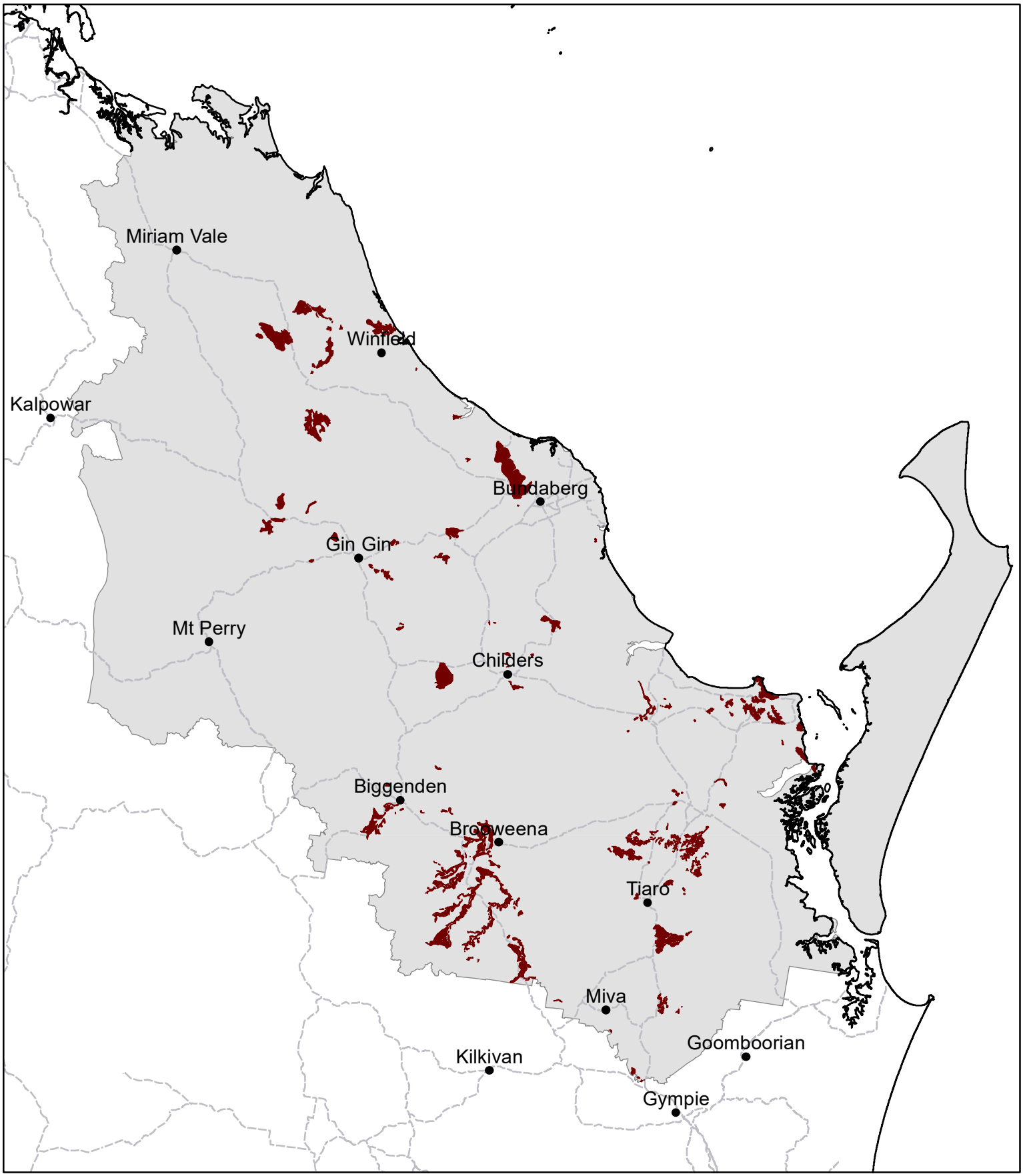
Regional Ecosystems

12.5.2, 12.5.2a, 12.5.2b, 12.5.2x1, 12.9-10.7a, 12.11.9, 12.11.15, 12.11.9x1, 12.12.12.

Land resource area

Granite (Glanville *et al* 1991).

CB03 Blue gum, ironbark and bloodwood slopes and hollows

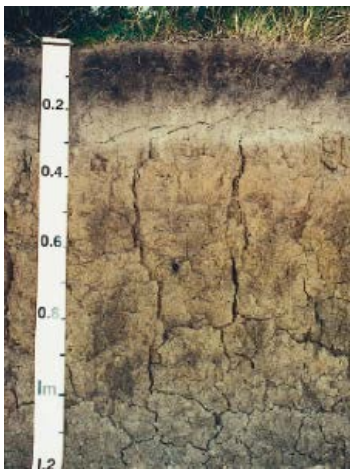


Area of land type in region: 2%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 43%
Median FPC: 45%
Median TBA: 19 m2/ha

Queensland Government

Gum-topped box

Landform	Undulating plains, low hills and ridges.
Woody vegetation	Gum-topped box, narrow-leaved ironbark, blue gum, spotted gum and wattles.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Pitted bluegrass, barbwire grass, kangaroo grass.
Intermediate	Queensland blue couch*, lovegrasses.
Non-preferred	Wiregrasses.
Suitable sown pastures	Not suitable for sown pastures. Oversow with legumes: shrubby stylo, Wynn cassia.
Introduced weeds	Giant rat's tail grass, African lovegrass.
Soil	Soloths and solodics (sodosols).
Description	***Surface*:** Hard-setting; ***Surface texture*:** clay loam; ***Subsoil texture*:** medium to heavy clay.
Water availability	Low (due to sodic subsoil).
Infiltration	Moderate at the surface.
Drainage	Impermeable and poorly drained sodic subsoil.
Fertility	Low nitrogen; low to moderate phosphorus.
Salinity	Non-saline
Sodicity	Sodic subsoil.
pH	Acidic throughout profile (soloths); acidic increasing to strongly alkaline at depth (solodics).



Loamy solodic

Depth (cm)	*Description*
0–20	Dark greyish brown, clay loam weak blocky structure; pH 5.5. Clear change to …
20–30	… bleached sandy clay loam; massive; very hard when dry; traces of soft manganese nodules; pH 6.4. Abrupt change to …
30–100	… yellow brown, medium heavy clay; moderate medium blocky structure; pH 8.5. Gradual change to ….
100–130	… grey medium clay; weak blocky structure; pH 9.0

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 870 – 1018 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	2380 - 2410	25%	4.8 - 4.9
	14 TBA 35 FPC	620 - 630	25%	19

Enterprise

Breeding and growing.

Land use and management recommendations

- Generally not suitable for pasture development, especially on sloping ground.
- Dam banks need to be sufficiently compacted during construction to prevent tunnelling and bank failure.
- Timber quality is highly variable; many stands are unsuitable for native forest management.

Land use limitations

- Very susceptible to erosion.
- Maintaining adequate ground cover is critical.
- Timber regrowth is a major issue following mechanical disturbance.

Conservation features and related management

- Remnant woodlands are important habitat for gliders, possums, koalas, tree creepers, speckled warblers, powerful owls and ground foraging birds.
- These woodlands provide important corridors through the landscape for both resident and dispersing fauna.
- Frequent fires reduce the shrubby understorey, but variable fire regimes encourage mosaics.
- Heavy grazing reduces fuel loads and exposes the soil surface to erosion.

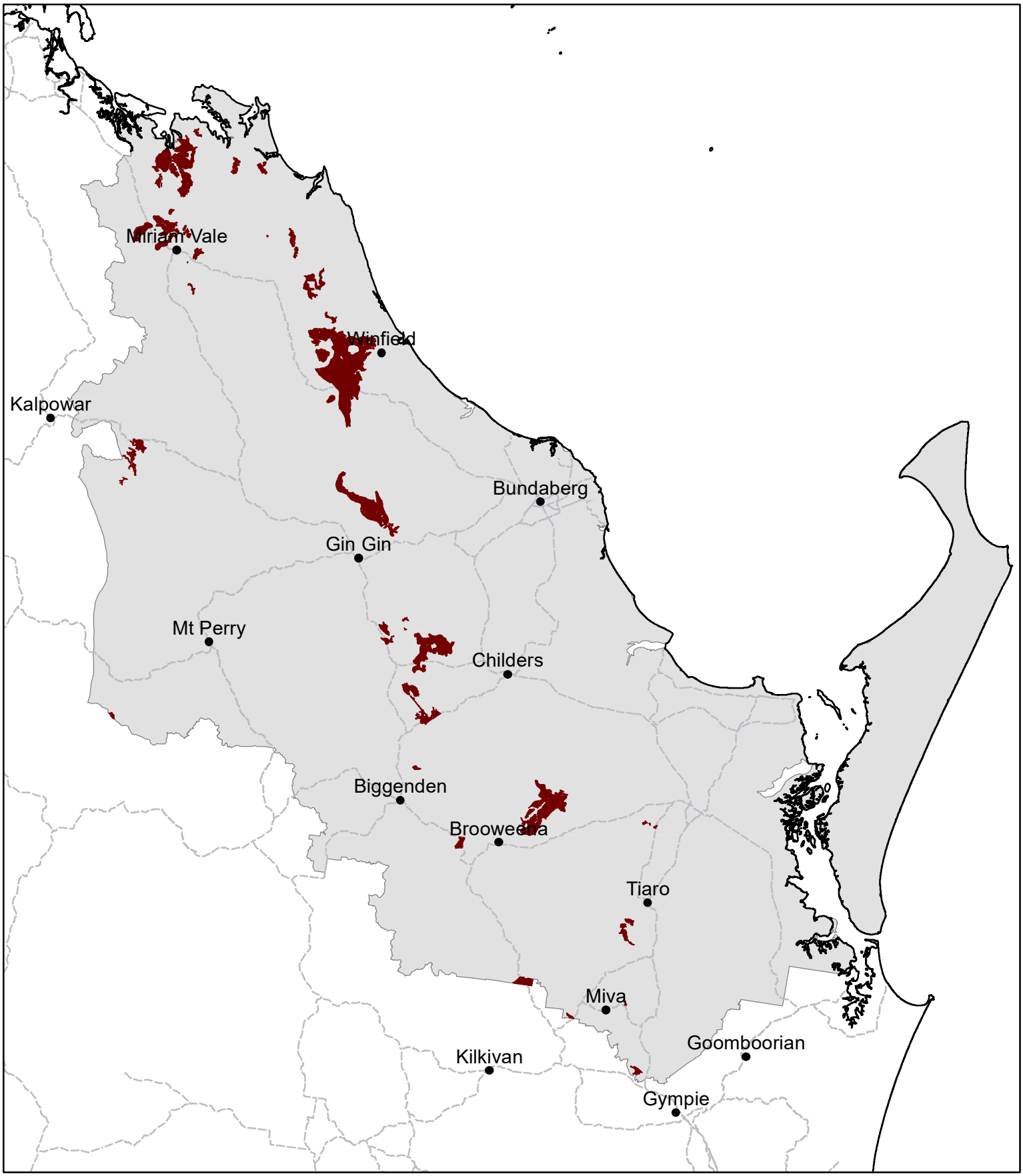
Regional Ecosystems

12.11.18, 12.11.18a, 12.12.28.

Land resource area

Uplifted coastal plains, metamorphic (Glanville *et al* 1991).

CB04 Gum-topped box

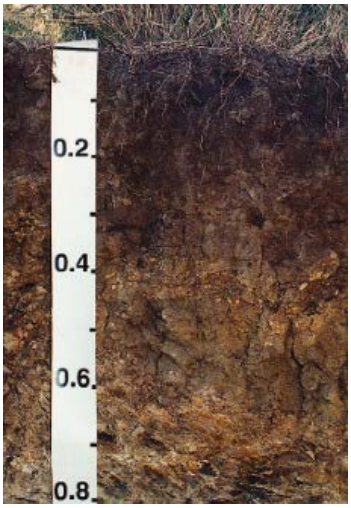


Area of land type in region: 2%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 60%
Median FPC: 35%
Median TBA: 14 m2/ha

Queensland Government

Hoop pine scrub

Landform	Mountains and undulating to rolling rises and plains.
Woody vegetation	Hoop pine with depauperate rainforest understorey. Crow's ash, Burdekin plum and bottletrees also occur.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Forest bluegrass, Queensland bluegrass, black speargrass, kangaroo grass.
Intermediate	Pitted bluegrass, tambookie grass, Queensland blue couch*, Angleton grass*.
Non-preferred	Wiregrasses, native chloris.
Suitable sown pastures	Creeping bluegrass, Rhodes grass, fine stem and shrubby stylos, siratro, Wynn cassia.
Introduced weeds	Creeping lantana, lantana, giant rat's tail grass, African lovegrass.
Soil	Prairie soils, non-calcic brown soils and lithosols (chromosols, rudosols).
Description	***Surface*:** Hard-setting; ***Surface texture*:** clay loam; ***Subsoil texture*:** clay loam to light medium clay.
Water availability	Medium (depending on soil depth).
Infiltration	Slow to moderate.
Drainage	Permeable, moderately well drained.
Fertility	Moderate to high total nitrogen; moderate to high phosphorus.
Salinity	Non-saline
Sodicity	Non-sodic
pH	Neutral or slightly acid; neutral, slightly alkaline or alkaline at depth.



Minimal Prairie soil

Depth (cm)	*Description*
0–20	Dark brown, clay loam; strong granular structure; pH 6.5. Gradual change to …
20–50	… brown, medium clay; strong blocky structure; some gravel; pH 7.5. Gradual change to …
50–75	… light Brown, light medium clay; strong blocky structure; gravely; pH 7.5. Gradual change to …
75+	… light brown, clay loam; weakly structured; very gravely; pH 8.5 (weathered basalt).

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 823 – 942 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	4510 - 4690	30% (sown)	2.1 – 2.2
	27 TBA 61 FPC	< 1600 - 2130	30% (sown)	> 4.6 – 6.1

Enterprise

Breeding, growing and fattening.

Land use and management recommendations

- Many areas were extensively cleared during the early 1900s for dryland cane production. Cane production was phased out during the 1960s primarily because of the high erosion hazard associated with the topography of this land type, but also because of the decline in productivity and greater productivity potential of irrigated cane.
- Suitable for pasture development provided slope limitations are considered.

Land use limitations

- Slope constraints.
- Old cane land can be contaminated with pesticides.
- Wattle regrowth and invasion by poison peach can limit productivity.

Conservation features and related management

- Habitat for rare and threatened flora and fauna.
- Remnants are threatened by weed invasion and fire on their margins. The use of fire breaks and cool season burns reduce this risk. Seasonal light grazing will reduce fuel loads.
- Remnant scrubs are used by a range of birds, reptiles and marsupials (wallabies in particular) for habitat. The fauna use the surrounding grassy woodlands or cleared paddocks as feed areas.
- Natural regeneration can be encouraged to develop connectivity with other areas of remnant vegetation.

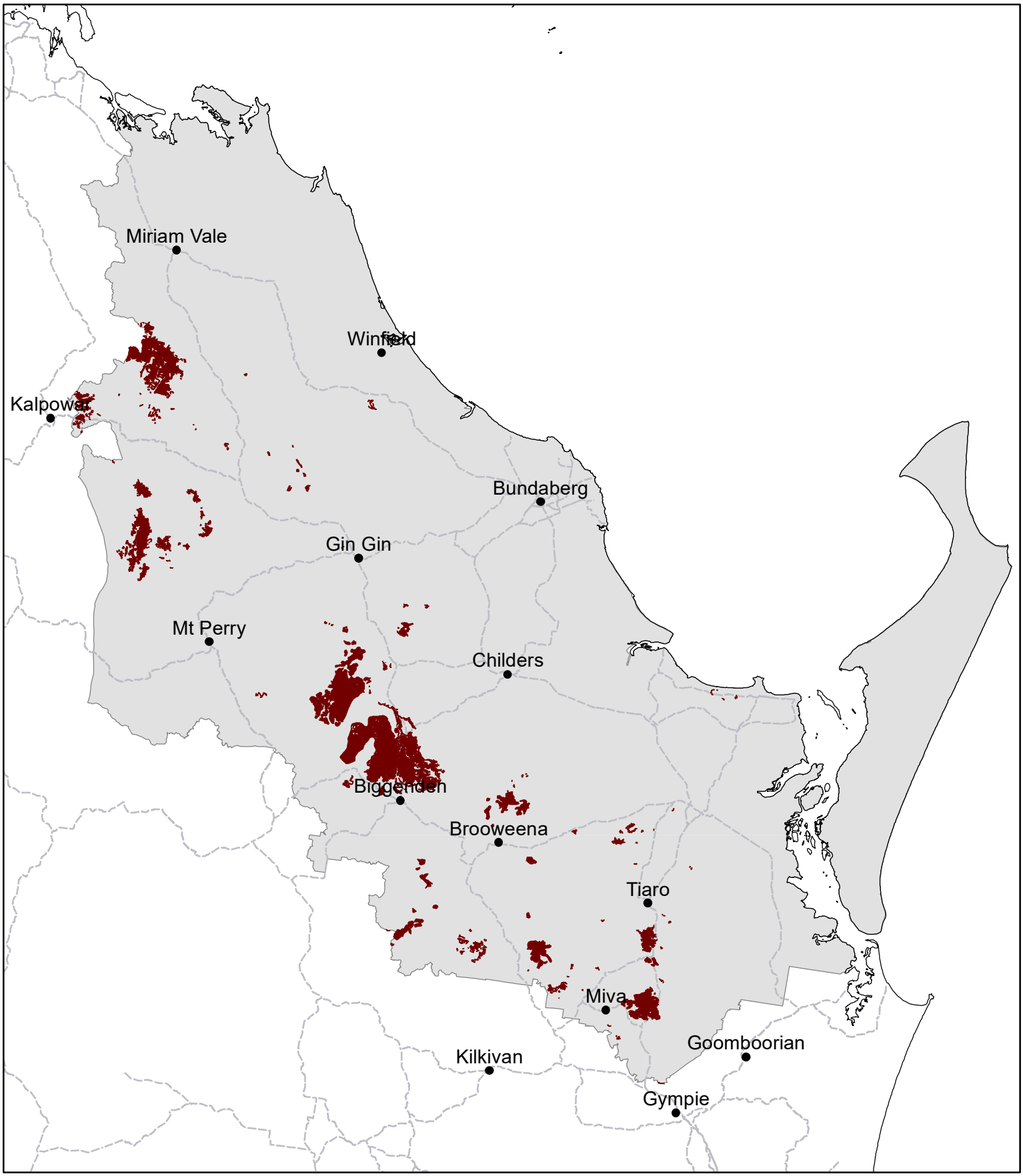
Regional Ecosystems

12.2.3, 12.11.10, 12.11.12, 12.11.16.

Land resource area

Metamorphic (Glanville *et al* 1991).

CB05 Hoop pine scrub



Area of land type in region: 3%
Median rainfall (region): 785 – 1111 mm
Average rainfall (region): 808 – 1195 mm
Area of land type with FPC: 65%
Median FPC: 61%
Median TBA: 27 m2/ha

Queensland Government

Ironbark, stringybark and supplejack ridges

Landform	Mountains and low hills.
Woody vegetation	Narrow-leaved ironbark, grey ironbark, white mahogany, white stringybark, thin-leaved stringybark, spotted gum, bloodwoods, turpentine, wattles, grass tree and supplejack.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Barbwire grass, black speargrass, kangaroo grass.
Intermediate	Pitted bluegrass, Queensland blue couch*, poverty grass.
Non-preferred	Wiregrasses, blady grass, rat's tail grasses.
Suitable sown pastures	Not suitable for sown pastures. Oversow with legumes: shrubby stylo, fine stem stylo, Wynn cassia.
Introduced weeds	Lantana.
Soil	Lithosols, yellow and red podzols, soloths and solodics (rudosols, kurosols, sodosols).
Description	***Surface*:** Firm to hard-setting; ***Surface texture*:** sandy clay loam; ***Subsoil texture*:** clay loam to medium clay; weathered bedrock.
Water availability	Very low (shallow soils).
Infiltration	Variable depending on parent material (generally good on granite).
Drainage	Permeable, very well drained.
Fertility	Very low total nitrogen; very low phosphorus.
Salinity	Non-saline
Sodicity	Non-sodic (as shallow solodic soils).
pH	Acidic throughout profile (podzols, soloths); acidic increasing to strongly alkaline at depth (solodics).

Lithosol

Depth (cm)	*Description*
0–25	Dark brown, sandy clay loam; coarse weak blocky structure; pH 6.0. Clear change … 0.25+
25+	… fractured rock (granite) interspersed with weathering rock.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 823 – 1018 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	2510 - 2530	25%	4.6 – 4.7
	23 TBA 54 FPC	<160 - 170	25%	> 69 - 73

Enterprise

Breeding

Land use and management recommendations

- Unsuitable for pasture development.
- Suitable for native forestry.
- Low key legume establishment only.
- Regular fire regime required to manage shrubby understorey (supplejack and lantana in particular).

Land use limitations

- Slope, shallow and rocky soils are constraints to development.
- Deeper sandy soils occur on plateaus.
- Infertile soils (particularly deficient in phosphorous).

Conservation features and related management

- Habitat for rare and threatened flora including *Persoonia* species and cycads.
- Relatively uncleared, these land types provide valuable resources for forest dependent fauna such as possums, gliders, forest owls, micro bats, insectivorous birds and arboreal and ground dwelling reptiles.
- Retaining adequate numbers of habitat trees is important in maintaining habitat for these species.
- Frequent fire regimes can reduce the shrubby understorey.

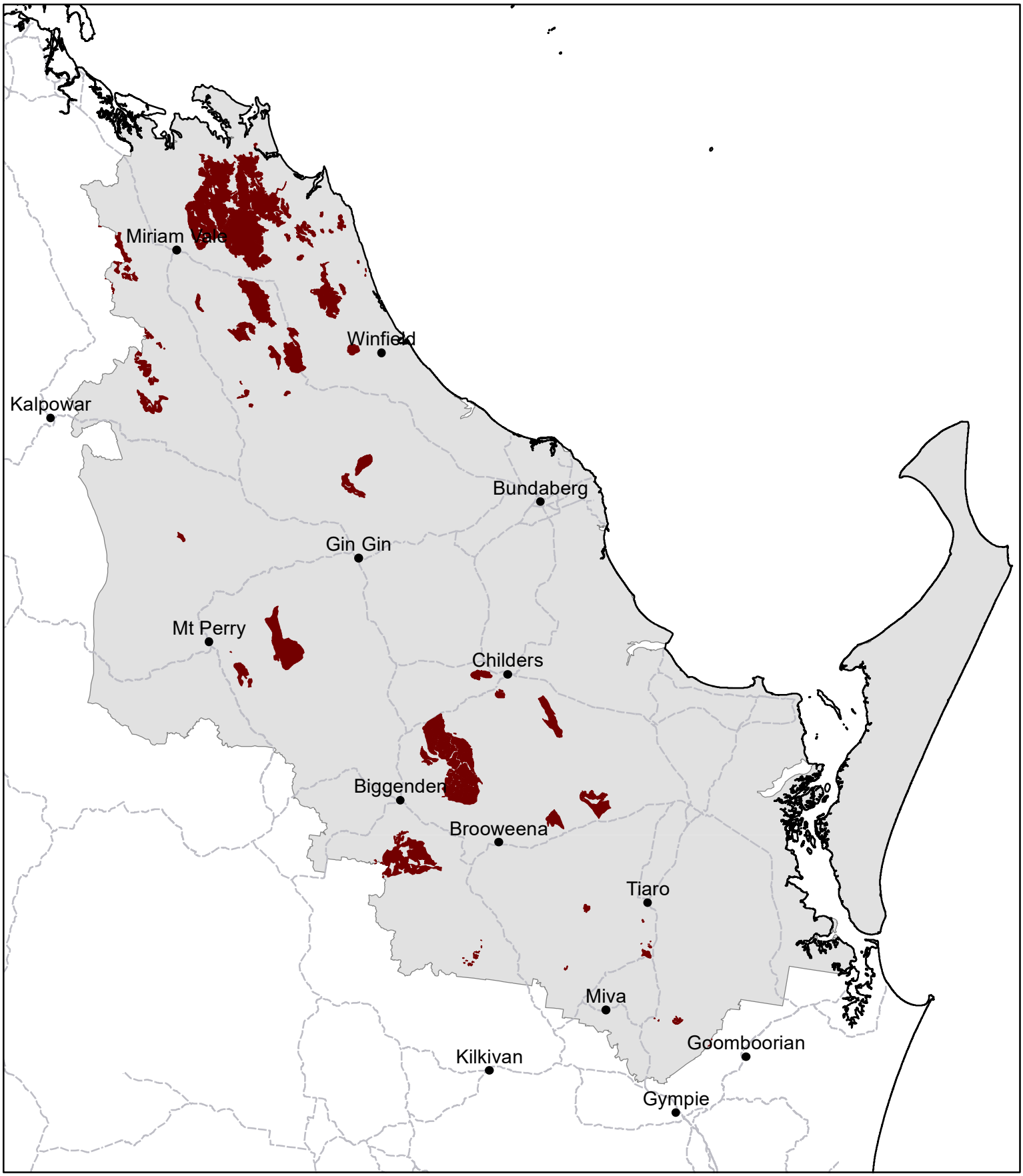
Regional Ecosystems

12.11.17, 12.12.4, 12.12.11, 12.12.15b; 12.12.22, 12.9-10.29.

Land resource area

Granite (Glanville *et al* 1991).

CB06 Ironbark, stringybark and supplejack ridges



Area of land type in region: 4%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 93%
Median FPC: 54%
Median TBA: 23 m2/ha

Queensland Government

Ironbark and bloodwood on non-cracking clay

Landform	Undulating to rolling rises and plains.
Woody vegetation	Silver-leaved ironbark, narrow-leaved ironbark, bloodwood and wattles.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Forest bluegrass, Queensland bluegrass, black speargrass, kangaroo grass.
Intermediate	Pitted bluegrass, Queensland blue couch*, barbwire grass, tambookie grass.
Non-preferred	Wiregrasses, bottlewasher grasses, rat's tail grasses.
Annuals	Annual chloris*.
Suitable sown pastures	Creeping bluegrass, Rhodes grass, signal grass, fine stem and shrubby stylos, siratro, Wynn cassia.
Introduced weeds	Giant rat's tail grass, lantana, creeping lantana.
Soil	Non-calcic brown soils, yellow and red podzols (chromosols, kurosols).
Description	***Surface*:** Firm to hard-setting; ***Surface texture*:** sandy clay loam; ***Subsoil texture*:** medium heavy clay.
Water availability	Low to moderate (depending on soil depth).
Infiltration	Moderate to good.
Drainage	Permeable, well drained.
Fertility	Low total nitrogen; moderate to low phosphorus.
Salinity	Non-saline
Sodicity	May have sodic surface; non-sodic below 10 cm.
pH	Acidic throughout profile.

Non-calcic brown soil

Depth (cm)	*Description*
0–20	Dull reddish brown, sandy clay loam. Weak angular blocky structure. Common sandstone cobbles and gravel. pH 6.0. Clear to…
20–30	…dull reddish brown, sandy clay. Moderate angular blocky structure. Few sandstone gravel. pH 6.0. Clear to…
30 - 100	...gley mottled reddish brown, medium heavy clay. Moderate prismatic to strong angular blocky structure. Common sandstone gravel. pH 5.5.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 823 – 1018 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	3970 - 3990	30%	2.4 - 2.5
	11 TBA 27 FPC	2300 - 2470	30%	3.9 – 4.2
Sown			35%	

Enterprise

Breeding, growing and finishing.

Land use and management recommendations

- Extensively cleared for native pasture.
- Suitable for sown pasture development.
- Timber reserves suitable for fencing (better stands suitable for sawlog).
- Suitable for hardwood plantation.
- On the granodiorite country between Moolboolaman and Miriam Vale, phosphorus levels are generally adequate for sown pastures but sulphur may be the limiting nutrient.
- The general recommendation is to use a sulphur fortified superphosphate fertiliser (e.g. SF45) at 50 kg/ha every 3 to 5 years.

Land use limitations

- Slope limitations for pasture development.
- Chronically overgrazed areas present a serious sheet and gully erosion hazard.

Conservation features and related management

- This woodland is an important wildlife habitat. Mature stands with numerous tree hollows are home to possums, koalas and gliders. The rough fissured bark of the ironbarks is ideal habitat for skinks and geckoes.
- The grassy understorey provides habitat for ground fauna such as small marsupials (bettongs), reptiles (frilled-neck lizards) and birds (quail) and is an important food source for the large macropods (whip-tailed wallabies, eastern grey kangaroos).
- While large areas of this land type have been thinned for grazing, reasonably sized remnants remain.
- The health of the landscape can be enhanced through appropriate fire regimes, grazing management and allowing regrowth to develop into effective wildlife corridors.

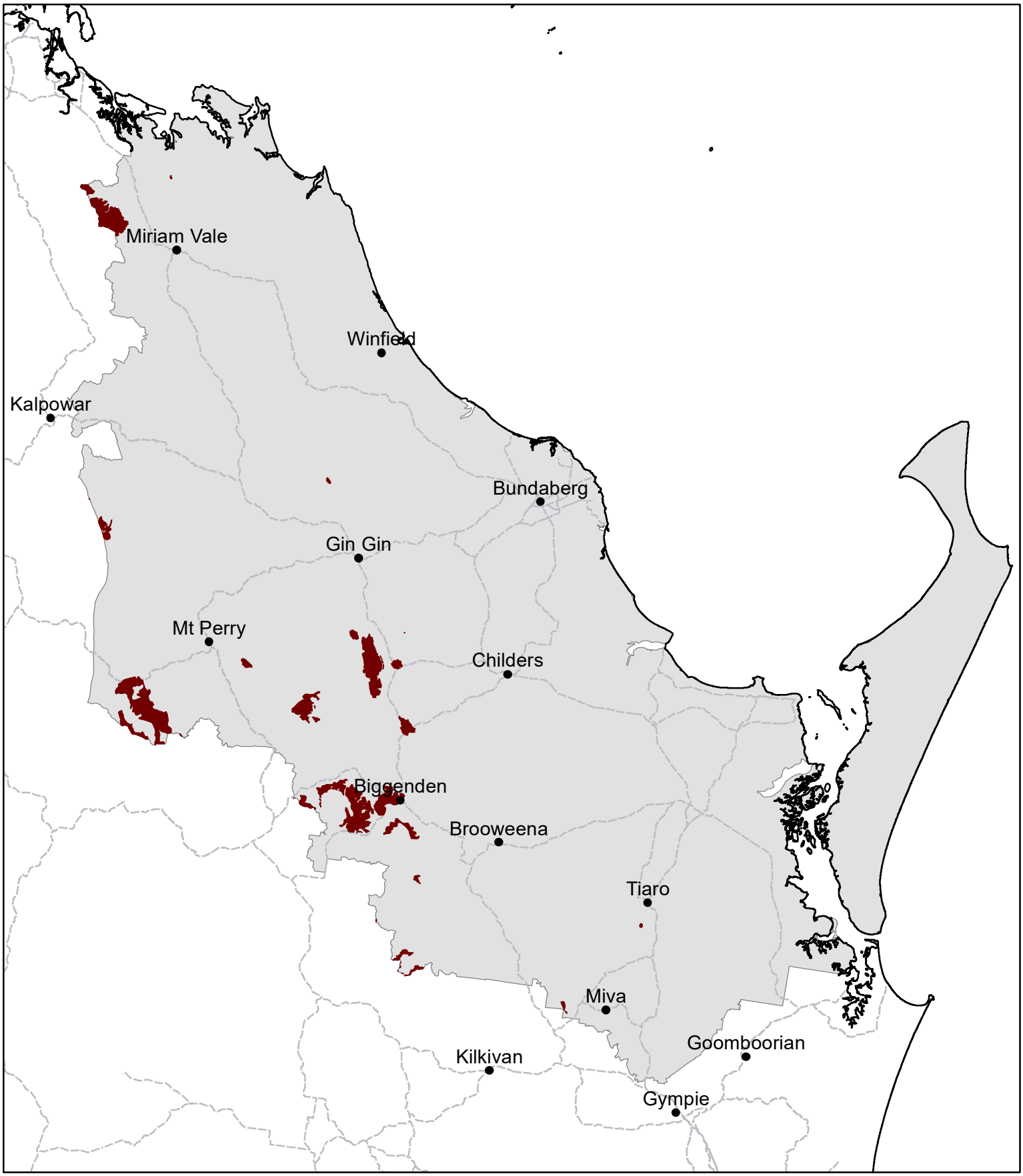
Regional Ecosystems

12.11.7, 12.12.27.

Land resource area

Granite, metamorphic, acid volcanic (Glanville *et al* 1991).

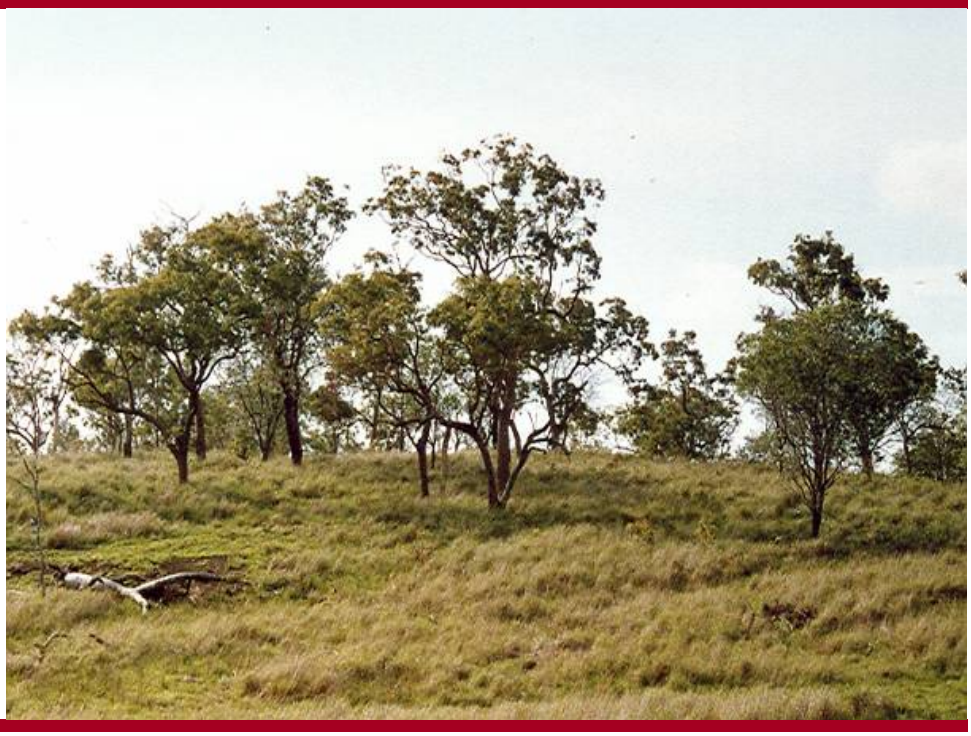
CB07 Ironbark and bloodwood on non-cracking clay



Area of land type in region: 3%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 28%
Median FPC: 27%
Median TBA: 11 m2/ha

Queensland Government

Ironbark and blue gum on basalt ridges



Landform	Undulating plains, low hills and plateau remnants.
Woody vegetation	Blue gum, silver-leaved ironbark, Moreton bay ash, pink bloodwood.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Forest bluegrass, Queensland bluegrass, Angleton grass* (naturalised).
Intermediate	Pitted bluegrass, Queensland blue couch*.
Non-preferred	Wiregrasses.
Annuals	Native sorghum.
Suitable sown pastures	Creeping bluegrass, Rhodes grass, Angleton bluegrass, Caatinga and fine stem stylos, siratro, leucaena.
Introduced weeds	Giant rat's tail grass, annual ragweed.
Soil	Black earths and prairie soils (vertosols, dermosols).
Description	***Surface*:** Cracking, self-mulching; ***Surface texture*:** medium to heavy clay; ***Subsoil texture*:** medium to heavy clay.
Water availability	Medium to high.
Infiltration	Moderate to good when dry; low to moderate when wet.
Drainage	Moderately well drained (can become waterlogged in some areas).
Fertility	Low to moderate total nitrogen; moderate to low phosphorus.

Salinity: Non-saline

Sodicity: Non-sodic

pH: Slightly acidic to neutral at surface, alkaline at depth.

Black Earth

Depth (cm)	*Description*
0–8	Black, heavy clay. Strong angular blocky structure. Self-mulching and cracking surface. pH 6.0. Gradual to …
8–30	… black heavy clay. Strong lenticular structure. pH 6.8. Diffuse to …
30–45	… brownish black heavy clay. Strong lenticular structure. pH 7.5. Clear to …
45–80	… angular basalt cobles overlying weathering basalt.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 924 – 998 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	3960 - 4180	30%	2.3 – 2.5
	18 TBA 42 FPC	1640 - 1750	30%	5.6 – 5.9
Sown			35%	

Enterprise

Breeding, growing and fattening.

Land use and management recommendations

- Extensively cleared for grazing and some cane cropping.
- Suitable for sown pasture.

Land use limitations

- Low phosphate levels.
- Can be difficult to work when dry.
- Sown pasture establishment is difficult.

Conservation features and related management

- Restricted to the older basalts around Maroondan and Monduran.
- Often fringing vegetation to softwood scrub.
- Few remnants remain.

Regional Ecosystems

12.8.16.

Land resource area

Basalt (Glanville *et al* 1991).

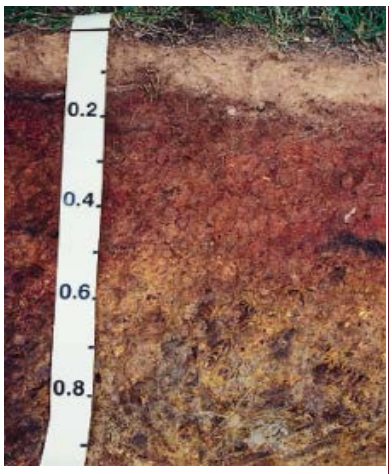
CB08 Ironbark and blue gum on basalt ridges

Area of land type in region: 0.1%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 17%
Median FPC: 42%
Median TBA: 18 m2/ha

Queensland Government

Ironbark and spotted gum on duplex and loam

Landform	Mountains, low hills and minor undulating plains.
Woody vegetation	Spotted gum, narrow-leaved ironbark, grey ironbark, bloodwoods and wattles.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Forest bluegrass, tambookie grass, black speargrass, kangaroo grass.
Intermediate	Pitted bluegrass, Queensland blue couch*, barbwire grass, cockatoo grass, golden beard grass.
Non-preferred	Wiregrasses, blady grass, lovegrasses.
Suitable sown pastures	Creeping bluegrass, Rhodes grass, signal grass, fine stem and shrubby stylos, siratro, Wynn cassia.
Introduced weeds	Giant rats tail grass, lantana, African lovegrass, blue heliotrope.
Soil	Non-calcic brown, yellow and red podzolics, soloths, and solodics (chromosols, kurosols, sodosols).
Description	***Surface*:** Hard-setting; ***Surface texture*:** sandy clay loam; ***Subsoil texture*:** light to medium clay.
Water availability	Low to moderate.
Infiltration	Moderate to good.
Drainage	Permeable, well drained.
Fertility	Low nitrogen; low phosphorus.
Salinity	Non-saline
Sodicity	May be sodic at the surface (non-calcic brown) or sodic at depth (solodics).
pH	Slightly acidic to neutral; acidic increasing to strongly alkaline at depth (solodics).



Non-calcic brown soil

Depth (cm)	*Description*
0–15	Brown, sandy clay loam; massive; pH 6.0. Clear change to…
15–50	… reddish brown, medium clay, strong blocky structure, friable, coarse rock fragments increasing in abundance with depth; pH 7.0.
50–60	Yellowish brown, light medium clay; weak blocky structure, many coarse rock fragments; pH 7.0.
60+	Weathered bedrock; pH 7.0.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day

Median annual rainfall 823 – 1018 mm

Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	3130 - 3140	30%	3.1
	17 TBA 41 FPC	1020 - 1270	30%	7.7 – 9.5
Sown			35%	

Enterprise

Breeding and growing.

Land use and management recommendations

- Suitable for both high key (full sown pasture) and low key (perennial legume) pasture development.
- Also a productive land type for native forestry (mill timber, poles, girders, sleepers).

Land use limitations

- Slope constraints to high key pasture development.
- Persistent overgrazing will lead to blue couch dominance or cassia dominance following cassia establishment.
- Wattle regrowth is a serious issue following disturbance.

Conservation features and related management

- This land type provides habitat for rare flora (*Persoonia spp.* and cycads) and valuable resources for forest dependent fauna such as possums, gliders, forest owls, micro bats, insectivorous birds and arboreal and ground dwelling reptiles.
- Areas with moderate to low slopes have generally been cleared or thinned for grazing. Areas extensively managed for timber have been modified through selective thinning and frequent fire. These practices have resulted in even aged stands with minimal habitat trees and poor stand succession.
- Retaining adequate numbers of habitat trees is important for forest health and biodiversity.
- The careful use of fire (especially following disturbance such as thinning or harvesting) allows forest regeneration and can be proactively used to promote biodiversity values within the land type and across the landscape.

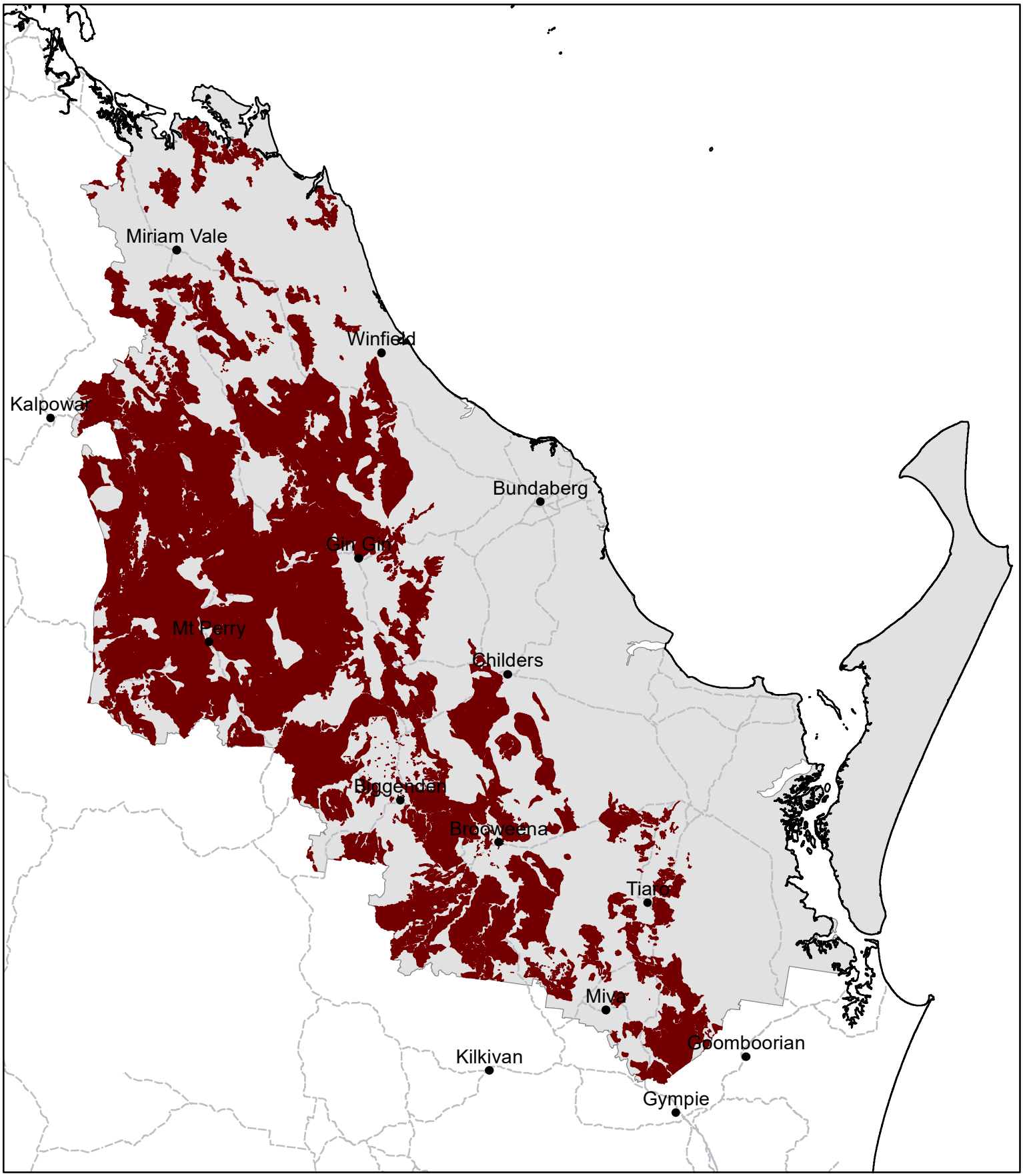
Regional Ecosystems

12.11.5, 12.11.6, 12.12.3, 12.12.5, 12.5.7c, 12.9–10.17b.

Land resource area

Granite, acid volcanic, metamorphic (Glanville *et al* 1991).

CB09 Ironbark and spotted gum on duplex and loam



Area of land type in region: 33%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 73%
Median FPC: 41%
Median TBA: 17 m2/ha

Queensland Government

Mixed eucalypts on uplifted coastal plains

Landform	Undulating plains, low hills and ridges.
Woody vegetation	Bloodwoods, stringybarks, narrow-leaved ironbark, grey ironbark, red ironbark, Queensland peppermint, spotted gum, smooth-barked apple and grass trees.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Golden beard grass, barbwire grass, black speargrass, kangaroo grass.
Intermediate	Queensland blue couch*, cockatoo grass.
Non-preferred	Poverty grass, blady grass.
Suitable sown pastures	Not suitable for sown pastures. Oversow with legumes: lotononis, shrubby and Caribbean stylos, siratro.
Introduced weeds	Giant rats tail grass, African lovegrass, lantana, groundsel bush.
Soil	Podzols, soloths, solodics and lithosols (chromosols, kurosols, sodosols).
Description	***Surface*:** Firm to hard-setting; ***Surface texture*:** sandy clay loam; ***Subsoil texture*:** clay loam to medium clay; weathered bedrock.
Water availability	Moderate to high; low in shallow soils.
Infiltration	Slow to moderate.
Drainage	Impermeable subsoil impedes internal drainage.
Fertility	Very low nitrogen; very low phosphorus.
Salinity	Non-saline
Sodicity	Non-sodic, may be sodic at depth (solodics).
pH	Acidic throughout profile (podzols, soloths); acidic increasing to strongly alkaline at depth (solodics).

Yellow Podzolic (fine)

Depth (cm)	*Description*
0–20	Yellow brown, fine sandy loam. Massive structure. Hard setting surface; pH 5.8. gradual to …
20–60	… orange mottled, sandy clay loam. Massive structure. Few sandstone gravel pH 6.0. Clear to …
60–100	… red mottled, yellow, light clay. Strong angular blocky structure; few sandstone gravel; pH 6.0. Gradual change to …
90–160	… red and grey mottled, yellow, light medium clay. Strong angular blocky structure; pH 6.0.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day

Median annual rainfall 870 – 1018 mm

Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	2990 - 3130	25%	3.7 - 3.9
	20 TBA 48 FPC	820 - 840	25%	14

Enterprise

Breeding and growing.

Land use and management recommendations

- Infertile land type containing shallow soils that are not suited to pasture development. Land type suitable for native forestry.
- Low key legume establishment will improve annual liveweight gains for cattle but will not increase carrying capacity.
- Sodic subsoils are inherently susceptible to tunnel erosion. It is important to maintain adequate ground cover.
- Care needs to be taken during dam bank construction to ensure adequate compaction which reduces the risk of bank failure.
- Relatively productive stands of native hardwood can be managed to yield up to 1m^3/ha/year of saw log.

Land use limitations

- Fertility and slope constraints for development. High erosion hazard.
- Serious regrowth potential following disturbance.

Conservation features and related management

- Habitat for rare and threatened flora including *Notelaea lloydii*, *Acacia* and *Macrozamia* species.
- This land type has not been extensively developed for grazing or cropping and contains many intact remnants. These remnants provide valuable corridors through the landscape for transitional and migratory birds and mammals. They support sugar gliders, arboreal marsupials, smaller macropods, hollow breeding birds, birds of prey and micro bats. Retention of ground litter provides important habitat for ground dwelling reptiles. They are best managed with careful grazing management and the strategic use of a variety of fire regimes.

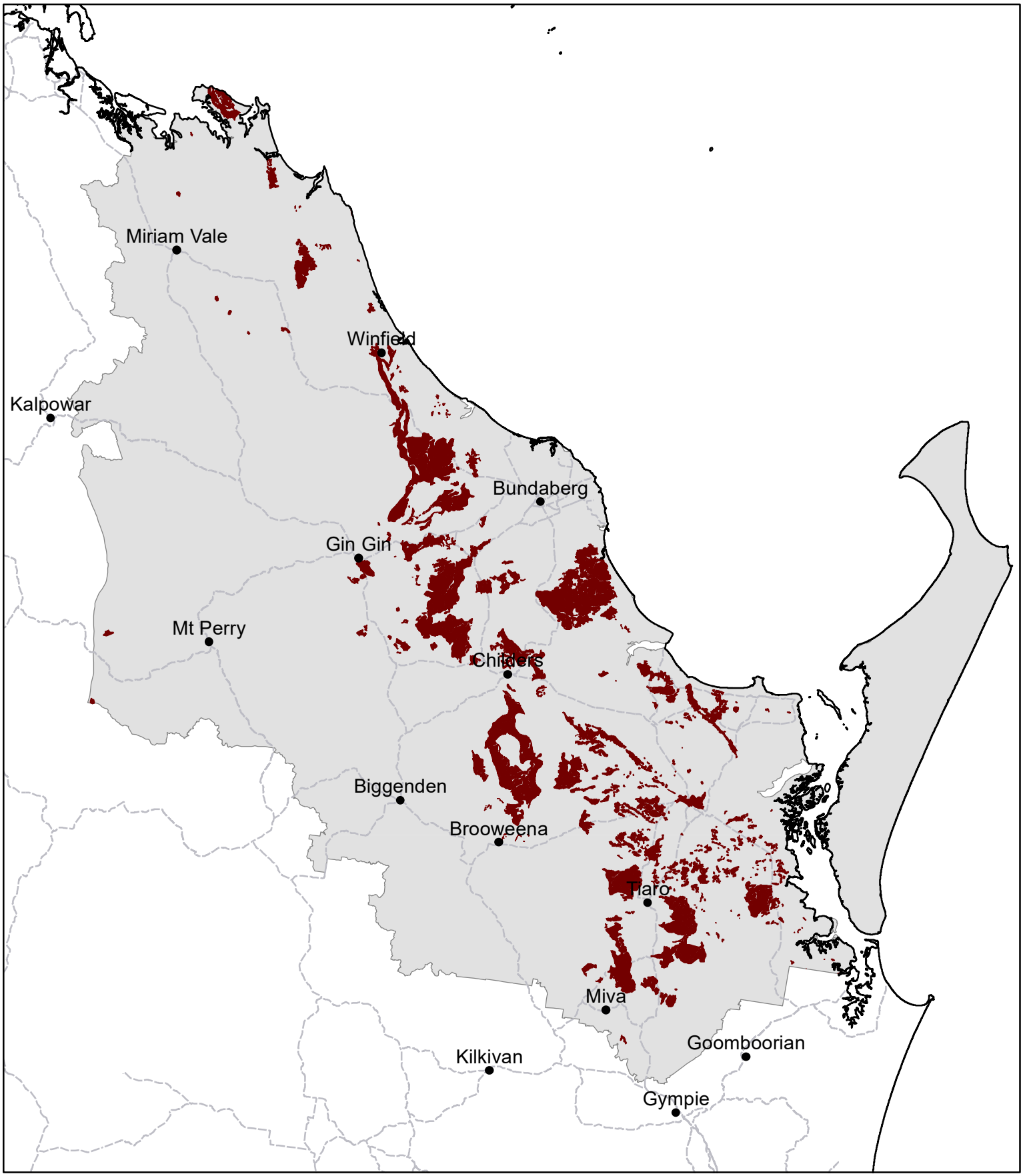
Regional Ecosystems

12.5.7, 12.5.7a, 12.5.7b, 12.9–10.19, 12.12.21.

Land resource area

Uplifted coastal plains (Glanville *et al* 1991).

CB10 Mixed eucalypts on uplifted coastal plains



Area of land type in region: 6%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 85%
Median FPC: 48%
Median TBA: 20 m2/ha

Queensland Government

Softwood scrub

Landform	Undulating plains, low hills and plateau remnants.
Woody vegetation	Softwood scrub including bottle trees, white cedar and crow's ash with depauperate rainforest understorey.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Forest bluegrass, Queensland bluegrass and scentedtop (run down pasture). Green panic, Rhodes grass in new pastures.
Intermediate	Pitted bluegrass, Queensland blue couch*, Angleton grass*.
Non-preferred	Wiregrasses.
Suitable sown pastures	Green panic, Rhodes grass, pangola grass, leucaena, siratro, axilaris, glycine.
Introduced weeds	Giant rats tail grass, lantana, blue heliotrope.
Soil	Kraznozems, xanthozems, black earths and prairie soils (ferrosols, dermosols, vertosols).
Description	***Surface*:** Weakly hard-setting; some cracking; ***Surface texture*:** light to medium heavy clay; ***Subsoil texture*:** light to medium heavy clay.
Water availability	High
Infiltration	Good
Drainage	Permeable, well drained.
Fertility	Moderate to high total nitrogen; moderate to high phosphorus.
Salinity	Non-saline
Sodicity	Non-sodic
pH	Slightly acidic to neutral; alkaline at depth (black earths, prairie soils).

Kraznozem

Depth (cm)	*Description*
0–20	Dark reddish brown, light clay. Moderate polyhederal to angular blocky structure. Firm to hard setting surface. pH 6.8. Diffuse to …
20–90	… reddish brown, light clay. Strong polyhederal to angular blocky structure. pH 6.8. Diffuse to …
90–135	… brown mottled, red, light clay. Moderate angular blocky structure. pH 7.0.

Utilisation

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 823 – 835 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	4950 - 5110	40% (sown)	1.4 – 1.5
	31 TBA 68 FPC	< 1920 - 1990	40% (sown)	> 3.7 – 3.8

Enterprise

Breeding, growing and fattening.

Land use and management recommendations

- Suitable for cropping on soils deeper than 45 cm and on slopes less than 4%.
- Suitable for pasture improvement; suitable for hardwood plantation.
- Need to ensure adequate ground cover to prevent erosion and maintain soil organic matter.

Land use limitations

- Old cane country is likely to contain chemical residues.
- These soils can become hard-setting following the loss of soil organic matter.
- Although non-saline, these highly permeable soils act as intake areas that can contribute to saline seepages developing on lower slopes where they meet impermeable soil types.

Conservation features and related management

- Very few scrub remnants remain; remnants are small and isolated.
- Habitat for rare and threatened flora and fauna.
- Remnants are threatened by weed invasion and fire on their margins. The use of fire breaks and cool season burns reduce this risk.
- Natural regeneration should be encouraged to develop connectivity with other areas of remnant vegetation.

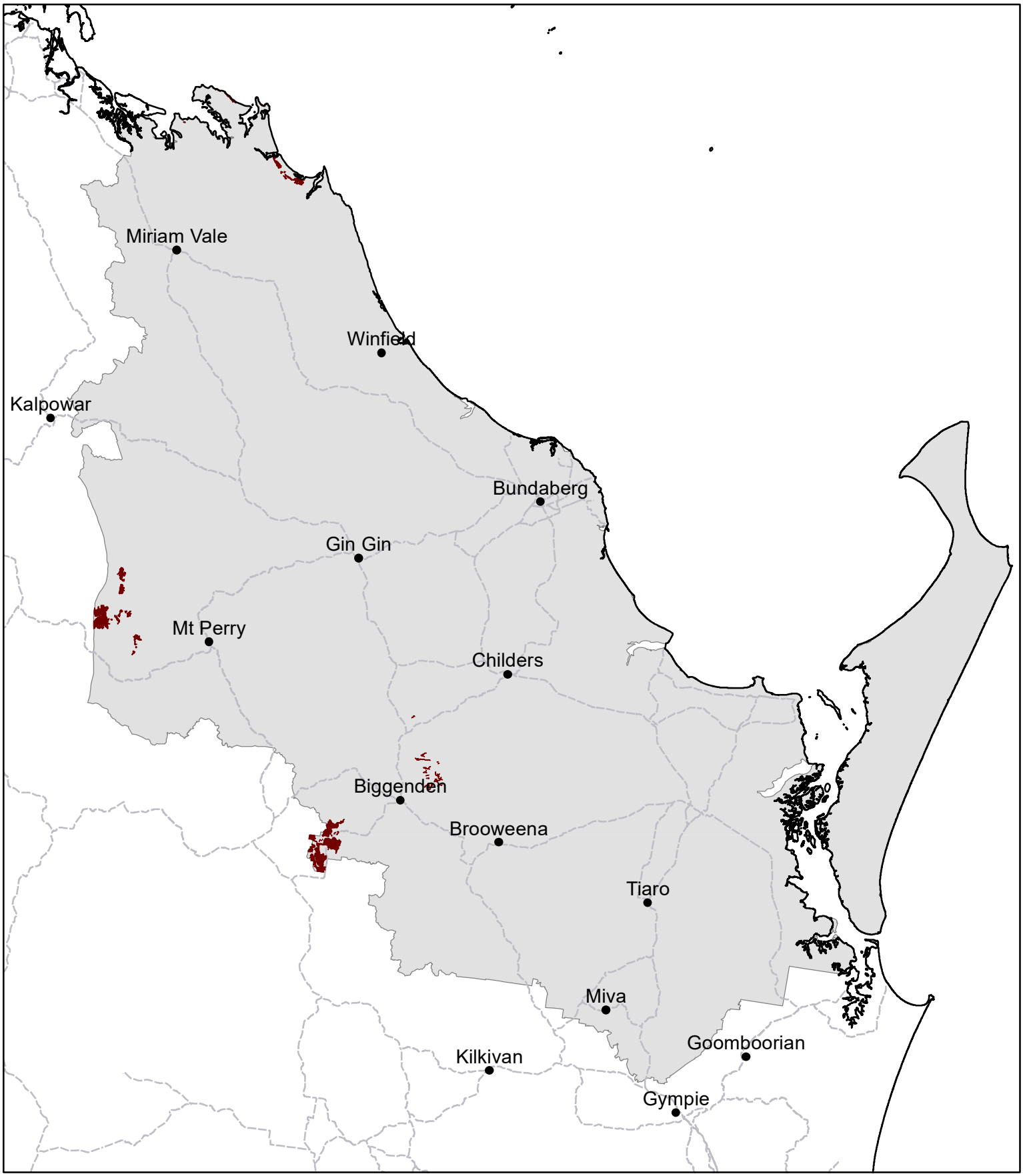
Regional Ecosystems

12.2.1, 12.2.2, 12.3.1, 12.8.22, 12.11.13.

Land resource area

Basalt (Major), Alluvium (Minor) (Glanville *et al* 1991).

CB11 Softwood scrub



Area of land type in region: 0.3%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 37%
Median FPC: 68%
Median TBA: 31 m2/ha

Queensland Government

Tea tree flats

Landform	Level alluvial plains (moderately extensive).
Woody vegetation	Paperbark tea tree, bloodwoods, blue gum, swamp mahogany.
Expected pasture composition	** Denotes non-native "Expected Pasture Composition" species*
Preferred	Golden beard grass, black speargrass, kangaroo grass.
Intermediate	Queensland blue couch*.
Non-preferred	Poverty grass.
Suitable sown pastures	Pangola grass, humidicola, lotononis, villomix.
Introduced weeds	Giant rat's tail grass, groundsel bush.
Soil	Soloths, solodics, podzols (sodosols, kurosols).
Description	***Surface*:** Hard-setting; ***Surface texture*:** sandy loam to clay loam; ***Subsoil texture*:** light to medium to heavy clay.
Water availability	Low (shallow rooting depth and low PAWC).
Infiltration	Slow (hard-setting surface).
Drainage	Impermeable subsoil; poorly drained.
Fertility	Very low to low nitrogen; very low phosphorus.
Salinity	May be saline.
Sodicity	Sodic to strongly sodic subsoil.
pH	Slightly acidic; increasing to strongly alkaline at depth (solodics).

Soloth

Depth (cm)	*Description*
0–15	Grey, fine sandy loam. Massive structure. Hard setting surface; pH 5.8. Diffuse to …
15–45	… light grey, clayey sand. Massive structure. pH 6.0. Abrupt change to …
45–90	… brown and orange mottled, yellow brown, sandy light clay. Weak prismatic structure; pH 4.8. Gradual change to ...
90–110	… orange mottled, grey light clay. Strong angular blocky structure; pH 5.3.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 882 – 1018 mm				
Pasture type	Median tree cover (TBA m^2/ha) (FPC %)	Median annual pasture growth (DM kg/ha)	Safe annual utilisation pasture growth (%)	LTCC (ha/AE)
Native species	0 TBA/FPC	2370 - 2440	25%	4.8 – 4.9
	25 TBA 57 FPC	< 260 - 270	25%	> 43 - 45
Sown			30%	

Enterprise

Breeding, seasonal stocking with store cattle.

Land use and management recommendations

- Infertile land type with limited development potential.
- Acute phosphorous (and in some cases calcium) deficiency in cattle. Particularly severe in lactating cows.
- Fire is effective in managing woody regrowth and woodland thickening.

Land use limitations

- Woody regrowth problems.
- Erosive subsoils; seasonal water-logging; poor fertility.
- Grazing animals exhibit acute phosphorous deficiency. Soils with high magnesic subsoils can lead to calcium deficiency in cattle.

Conservation features and related management

- Habitat for sedges and ferns and rare and threatened flora including swamp orchids *Phaius australis* and *P. tancarvilleae*.
- Important habitat for migratory woodland birds (kingfishers, whistlers and robins) and important seasonal habitat for frogs.
- The autumn and spring flowering cycles of various plants attract lorikeets and honey eaters.
- Remnants are particularly susceptible to weed invasion on their margins.
- Landscape connectivity is important for wildlife corridors.

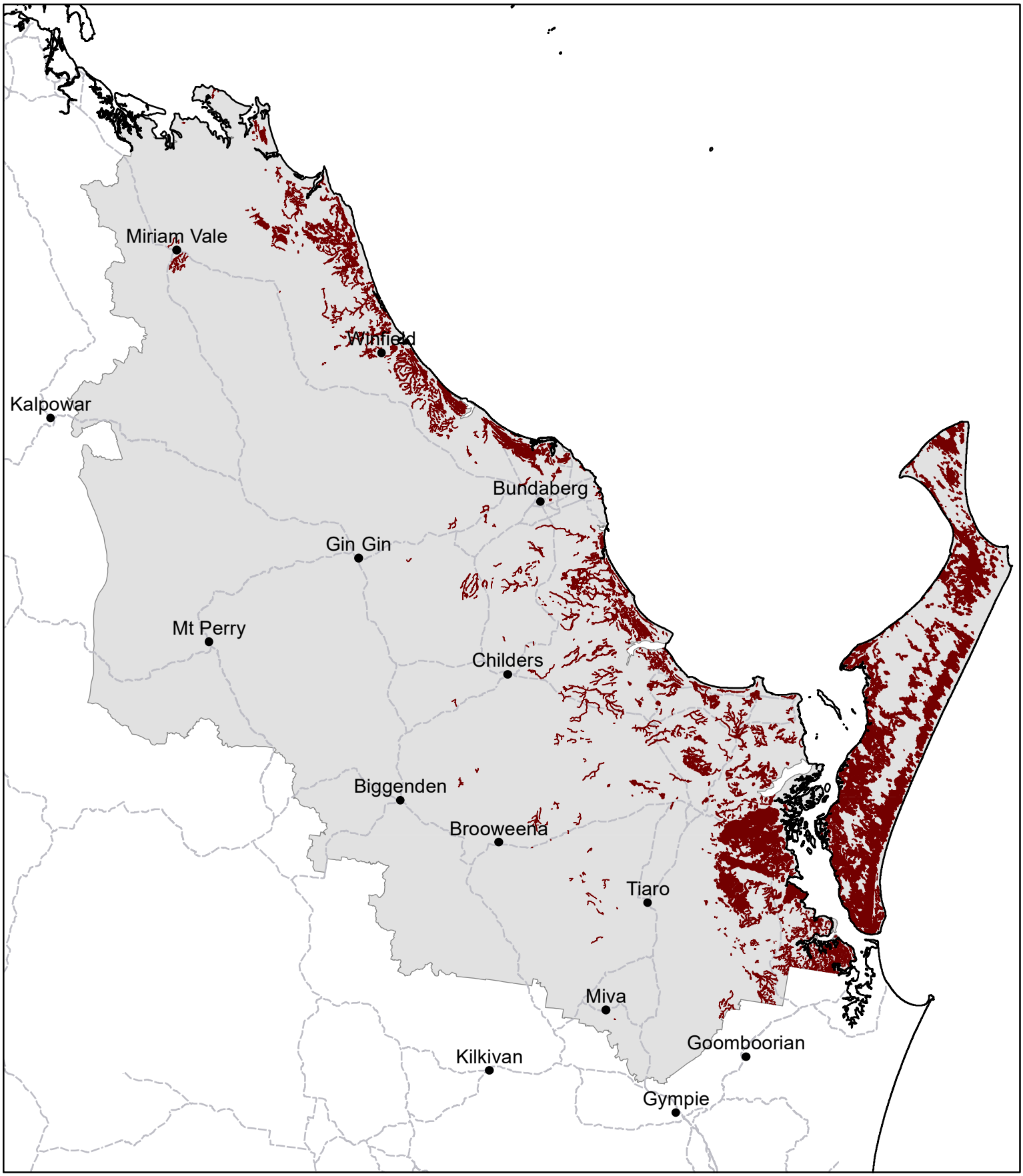
Regional Ecosystems

12.2.5, 12.2.7, 12.2.7a, 12.2.7c, 12.3.4, 12.3.4a, 12.3.5, 12.3.6, 12.5.4a, 12.9-10.10

Land resource area

Alluvium (major); sandplain and coastal plain (minor) (Glanville *et al* 1991).

CB12 Tea tree flats



Area of land type in region: 6%
Median rainfall (region): 785–1111 mm
Average rainfall (region): 808–1195 mm
Area of land type with FPC: 89%
Median FPC: 57%
Median TBA: 25 m2/ha

Queensland Government