

Border Rivers Region Plant Index

Common name	Scientific name	Page
acacias	<i>Acacia</i> spp.	BR01, BR06
African boxthorn*	<i>Lycium ferocissimum</i>	BR09, BR10, BR13
African lovegrass*	<i>Eragrostis curvula</i>	BR05, BR06, BR07, BR09, BR10, BR11, BR12
Angleton bluegrass*	<i>Dichanthium aristatum</i> cv. Floren	BR02, BR04
annual ryegrass*	<i>Lolium rigidum</i>	BR06, BR07
awnless barnyard grass*	<i>Echinochloa colona</i>	
Baker's mallee	<i>Eucalyptus bakeri</i>	BR06
Bambatsii panic*	<i>Panicum coloratum</i>	BR02, BR04
banksia	<i>Banksia</i> sp.	BR06
barbwire grass	<i>Cymbopogon refractus</i>	BR06, BR07, BR10, BR11, BR12
barrel medic/s*	<i>Medicago truncatula</i>	BR01, BR02, BR04, BR09, BR10, BR11, BR12
Brunswick grass*	<i>Paspalum nicorae</i>	BR06, BR07
belah	<i>Casuarina cristata</i>	BR01, BR02, BR04, BR13
belalie	<i>Acacia stenophylla</i>	BR04
bendee	<i>Acacia catenulata</i>	BR08
Biserrula*	<i>Biserrula pelecinus</i>	BR11, BR12
black box	<i>Eucalyptus largiflorens</i>	BR04
black cypress pine	<i>Callitris endlicheri</i>	BR06
black speargrass	<i>Heteropogon contortus</i>	BR10
black tea tree	<i>Melaleuca bracteata</i>	BR02
blackberry*	<i>Rubus fruticosus</i>	BR06, BR07
black pine see also black cypress pine	<i>Callitris endlicheri</i>	BR12
blady grass	<i>Imperata cylindrica</i>	BR06, BR07
Blakely's red gum	<i>Eucalyptus blakelyi</i>	BR09

Common name	Scientific name	Page
blue gum	<i>Eucalyptus tereticornis</i>	BR07
blue trumpet	<i>Brunoniella australis</i>	BR03
boonaree	<i>Alectryon oleifolium</i>	BR04, BR09
bracken fern	<i>Pteridium esculentum</i>	BR06, BR07
brigalow	<i>Acacia harpophylla</i>	BR01, BR02
brigalow grass	<i>Paspalidium caespitosum</i>	BR01, BR02
broad-leaved stringybark	<i>Eucalyptus caliginosa</i>	BR06, BR07
budda pea	<i>Aeschynomene indica</i>	BR02
buffel grass*	<i>Cenchrus ciliaris</i>	BR01, BR02, BR05, BR09, BR10
bulloak	<i>Allocasuarina luehmannii</i>	BR03, BR05, BR08, BR13
burr medic/s*	<i>Medicago polymorpha</i>	BR01, BR02, BR04, BR09, BR11, BR12
button grass	<i>Dactyloctenium radulans</i>	BR04
Caatinga stylo*	<i>Stylosanthes seabrana</i>	BR01, BR02, BR04, BR09
Caley's ironbark	<i>Eucalyptus caleyi</i>	BR06, BR07
carbeen	<i>Corymbia tessellaris</i>	BR05
cat's claw creeper*	<i>Macfadyena unguis-cati</i>	BR05, BR09
cluster clover*	<i>Trifolium glomeratum</i>	BR07, BR11, BR12
common fringe rush	<i>Fimbristylis dichotoma</i>	BR09
coolatai grass*	<i>Hyparrhenia hirta</i>	BR11
coolibah	<i>Eucalyptus coolabah</i>	BR04
coolibah grass	<i>Thellungia advena</i>	BR04
Cooper clover*	<i>Trigonella suavissima</i>	BR04
corkscrew grass	<i>Austrostipa setacea</i>	BR06, BR09, BR12
cosmos weed*	<i>Cosmos bipinnatus</i>	BR06, BR07
cotton panic grass	<i>Digitaria brownii</i>	BR10

Common name	Scientific name	Page
cough bush see also wild rosemary	<i>Cassinia laevis</i> , <i>C. quinquefaria</i>	
creeping bluegrass*	<i>Bothriochloa insculpta</i> cv. Bisset	BR01, BR02, BR09, BR10
curly Mitchell grass	<i>Astrebula lappacea</i>	BR04
curly windmill grass	<i>Enteropogon acicularis</i>	BR01, BR02, BR03, BR05, BR08, BR10
cupgrass see also spring grass	<i>Eriochloa crebra</i>	BR04
cypress pine	<i>Callitris columellaris</i> syn. <i>C. glaucophylla</i>	BR03, BR05, BR08, BR10, BR12
dainty lovegrass	<i>Eragrostis microcarpa</i>	BR01, BR02,
daisies	<i>Calotis</i> spp.	BR03
dark wiregrass	<i>Aristida calycina</i>	BR03, BR06, BR11, BR12
Darling peas	<i>Swainsona galegifolia</i> , <i>S. luteola</i> , <i>S. greyana</i>	BR04
<i>Desmanthus</i>	<i>Desmanthus virgatus</i>	BR02, BR04
<i>Desmodium</i>	<i>Desmodium intortum</i> , <i>D. uncinatum</i>	BR06, BR11, BR12
digit grass*	<i>Digitaria smutsii</i> cv. Premier	BR01, BR02, BR03, BR05, BR06, BR07, BR09, BR11, BR12
dogwood	<i>Jacksonia scoparia</i>	BR06
early spring grass	<i>Eriochloa pseudoacrotricha</i>	BR01, BR02, BR03, BR04
fairy grass	<i>Sporobolus caroli</i>	BR01, BR02,
false sandalwood	<i>Eremophila mitchellii</i>	BR01, BR02, BR08, BR09, BR10
feathertop wiregrass	<i>Aristida latifolia</i>	BR04
five-minute grass	<i>Tripogon loliiformis</i>	BR11
forest bluegrass	<i>Bothriochloa bladhii</i>	BR04
forest bluegrass*	<i>Bothriochloa bladhii</i> cv. Swann	BR11, BR12
forest hedgehog grass	<i>Echinopogon ovatus</i>	BR06, BR07, BR11, BR12
fringe rushes	<i>Fimbristylis</i> spp.	BR07
fuzzy box	<i>Eucalyptus conica</i>	BR09, BR11, BR12
Gatton panic*	<i>Panicum maximum</i>	BR01, BR02, BR09

Common name	Scientific name	Page
gilgai grass	<i>Walwhalleya subxerophilum</i> formerly <i>Panicum subxerophilum</i>	BR02, BR08
glycine see also native glycines	<i>Glycine</i> species	BR06, BR07, BR11, BR12
glycine pea	<i>Glycine tabacina</i>	BR10
golden beard grass	<i>Chrysopogon fallax</i>	BR03, BR05, BR09
granite lovegrass	<i>Eragrostis alveiformis</i>	BR09
green mallee	<i>Eucalyptus viridis</i>	BR06
grey box see also gum-topped box	<i>Eucalyptus moluccana</i> , <i>E. microcarpa</i>	BR11, BR12
gum-topped box	<i>Eucalyptus moluccana</i>	
hairy panic	<i>Panicum effusum</i>	BR05, BR09, BR10, BR11
haresfoot clover	<i>Trifolium arvense</i>	BR11, BR12
harrisia cactus*	<i>Harrisia martini</i>	BR01, BR02, BR13
hooky grass	<i>Ancistrachne uncinulata</i>	BR08
hoop Mitchell grass	<i>Astrebla elymoides</i>	BR04
hopbush	<i>Dodonea attenuate</i> , <i>D. spp.</i>	BR12
hybrid disc/strand medic/s*	<i>Medicago tornata/littoralis</i> cv. Toreador	BR09, BR10
ironwood	<i>Acacia excelsa</i>	BR09
jericho wiregrass	<i>Aristida jerichoensis</i>	BR05
joyweed	<i>Alternanthera nodiflora</i>	BR09
kangaroo grass	<i>Themeda triandra</i>	BR06, BR09, BR10
kidneyweed	<i>Dichondra repens</i>	BR11, BR12
kurrajong	<i>Brachychiton populneus</i>	BR09, BR10
leopardwood	<i>Flindersia dissosperma</i>	BR09
limebush	<i>Citrus glauca</i>	BR01
lippia*	<i>Phyla canescens</i>	BR01, BR02, BR04, BR09
liverseed grass*	<i>Urochloa panicoides</i>	BR01

Common name	Scientific name	Page
lovegrass/es <i>see also</i> purple lovegrass, granite lovegrass	<i>Eragrostis</i> spp.	BR01, BR02, BR03, BR05
leucaena*	<i>Leucaena leucocephala</i>	BR02, BR04
lucerne*	<i>Medicago sativa</i>	BR11, BR12
mallee box <i>see also</i> narrow-leaved grey box	<i>Eucalyptus pilligaensis</i>	BR02, BR03, BR09, BR13
many-headed wiregrass	<i>Aristida caput-medusae</i>	BR08
mollybox	<i>Eucalyptus pilligaensis</i>	BR02
mother-of-millions*	<i>Bryophyllum delagoense</i>	BR01, BR02, BR03, BR08, BR13
mountain yapunyah	<i>Eucalyptus thozetiana</i>	
Mueller's saltbush	<i>Atriplex muelleri</i>	BR09
mulga	<i>Acacia aneura</i>	BR08, BR10
mulga fern	<i>Cheilanthes sieberi</i>	BR03
myall	<i>Acacia pendula</i>	BR04
narrow-leaved grey box	<i>Eucalyptus pilligaensis</i>	
narrow-leaved ironbark	<i>Eucalyptus crebra</i>	BR03, BR08, BR12
native glycines	<i>Glycine</i> spp.	BR05
native millet	<i>Panicum decompositum</i>	BR04
New England blackbutt	<i>Eucalyptus andrewsii</i> subsp. <i>andrewsii</i> and <i>campanulata</i>	BR06, BR07
New Zealand spinach	<i>Tetragonia tetragonoides</i> formerly <i>T.</i> <i>expansa</i>	BR02
nipan	<i>Capparis lasiantha</i>	BR01
noogoora burr*	<i>Xanthium occidentale</i>	BR09
paspalum*	<i>Paspalum dilatatum</i>	BR06, BR07, BR11, BR12
peach bush	<i>Olearia elliptica</i>	BR11, BR12
pertusa*	<i>Bothriochloa pertusa</i> cv. Medway	BR11, BR12
pitted bluegrass	<i>Bothriochloa decipiens</i>	BR03, BR05, BR06, BR07, BR09, BR10, BR11, BR12, BR13
plume grass	<i>Dichelachne</i> spp.	BR06, BR07

Common name	Scientific name	Page
poplar box	<i>Eucalyptus populnea</i>	BR02, BR03, BR08, BR09, BR10, BR13
porcupine grass	<i>Triodia scariosa</i> formerly <i>T. irritans</i>	
poverty grass	<i>Eremochloa bimaculata</i>	BR03, BR08
prickly pear*	<i>Opuntia stricta</i>	BR01, BR02, BR04
purple lovegrass	<i>Eragrostis lacunaria</i>	BR05, BR08
purple pigeon grass*	<i>Setaria incrassata</i>	BR02, BR04
purple wiregrass	<i>Aristida ramosa</i>	BR03, BR06, BR08, BR10, BR11, BR12
Queensland bluegrass	<i>Dichanthium sericeum</i>	BR01, BR02, BR04, BR09, BR11, BR12
Rhodes grass*	<i>Chloris gayana</i> cvv. Katambora, finecut	BR01, BR02, BR03, BR05, BR09
red ash	<i>Alphitonia excelsa</i>	BR08
rose clover*	<i>Trifolium hirtum</i>	BR11, BR12
rough speargrass	<i>Austrostipa scabra</i>	BR09, BR10
rusty gum	<i>Angophora leiocarpa</i>	BR03, BR05
saltbushes	<i>Atriplex</i> spp.	BR02
saw-sedges	<i>Gahnia sieberiana</i> , <i>Gahnia</i> spp.	BR03
<i>Sclerolaena</i>	<i>Sclerolaena</i> spp.	BR04
serradella*	<i>Ornithopus compressus</i> , <i>O. pinnatus</i>	BR03, BR05, BR06, BR07
sesbania pea	<i>Sesbania cannabina</i>	BR04
shorthair plumegrass	<i>Dichelachne micrantha</i>	BR11, BR12
shot grass	<i>Paspalidium globoideum</i>	BR04
silky browntop	<i>Eulalia aurea</i>	BR03, BR07
silky umbrella grass	<i>Digitaria ammophila</i>	BR05
slender chloris	<i>Chloris divaricata</i>	BR11, BR13
slender panic	<i>Paspalidium gracile</i>	BR01, BR02, BR08
slender tick trefoil	<i>Desmodium varians</i>	BR10
small Flinders grass	<i>Iseilema membranaceum</i>	BR04

Common name	Scientific name	Page
small mulga Mitchell grass	<i>Thyridolepis xerophila</i>	BR08, BR10
snail medic*	<i>Medicago scutellata</i>	BR02, BR04
soft roly poly	<i>Salsola kali</i>	BR13
spinifex <i>see also</i> porcupine grass	<i>Triodia scariosa</i> formerly <i>T. irritans</i>	BR13
spiny burr grass*	<i>Cenchrus longispinus</i>	BR05
spotted gum	<i>Eucalyptus citriodora</i> subsp. <i>variegata</i>	BR12
spring grass	<i>Eriochloa crebra</i>	
sticky daisy bush <i>see also</i> peach bush	<i>Olearia elliptica</i>	
stinkgrass	<i>Erogrostis cilianensis</i>	BR01, BR02
streaked poverty-bush	<i>Sclerolaena tricuspis</i>	BR13
sub clover/s*	<i>Trifolium subterraneum</i>	BR06, BR07, BR11, BR12
summer grass	<i>Digitaria sanguinalis</i> , <i>D. ciliaris</i>	BR07
swamp wilga	<i>Eromophila bignoniflora</i>	BR04
tall chloris	<i>Chloris ventricosa</i>	BR09, BR10
tall fescue*	<i>Festuca arundinacea</i>	BR06, BR07
tall finger grass*	<i>Digitaria milianjiana</i> cvv. Strickland	BR01, BR02, BR09, BR10
tea tree	<i>Melaleuca</i> sp.	BR13
tree pear* <i>see also</i> velvet tree pear*	<i>Opuntia tomentosa</i> , <i>O. vulgaris</i>	BR10, BR11
tumbledown gum	<i>Eucalyptus dealbata</i>	BR05, BR06, BR07, BR12
twinleaf	<i>Zygophyllum glaucum</i>	BR02
twirly windmill grass	<i>Enteropogon ramosus</i>	BR04
umbrella canegrass	<i>Leptochloa digitata</i>	BR04
velvet tree pear*	<i>Opuntia tomentosa</i>	BR01, BR02, BR03
wallaby grass	<i>Danthonia racemosa</i> , <i>D. tenuior</i> , <i>D. bipartita</i>	BR06, BR07, BR11, BR12
Warrego summer grass	<i>Paspalidium jubiflorum</i>	BR02

Common name	Scientific name	Page
water couch	<i>Paspalum distichum</i>	BR02
wattles	<i>Acacia</i> spp.	BR05, BR11
weeping grass	<i>Microlaena stipoides</i>	BR06, BR07, BR12
weeping lovegrass	<i>Eragrostis parviflora</i>	BR01, BR02, BR06, BR07
whiskey grass*	<i>Andropogon virginicus</i>	BR06, BR07
white clover*	<i>Trifolium repens</i>	BR06, BR07
whitewood	<i>Atalaya hemiglauca</i>	BR09
white speargrass	<i>Aristida leptopoda</i>	BR01, BR04
wild orange	<i>Capparis mitchellii</i>	BR01
wild rosemary	<i>Cassinia laevis</i>	BR11, BR12
wilga	<i>Geijera parviflora</i>	BR01, BR02, BR09, BR10
windmill grass	<i>Chloris truncata</i>	BR09, BR10, BR11, BR12, BR13
wiregrasses <i>see also</i> dark wiregrass, purple wiregrass	<i>Aristida</i> spp.	BR06, BR07, BR11, BR12
wiry panic	<i>Cleistochloa subjuncea</i>	BR08
woodland lovegrass	<i>Eragrostis sororia</i>	BR01, BR02
woolly pod vetch*	<i>Vicia villosa</i>	BR10
Wynn cassia*	<i>Chamaecrista rotundifolia</i> cv. Wynn	BR05
yapunyah <i>see also</i> mountain yapunyah	<i>Eucalyptus thozetiana</i>	BR02
yellow box	<i>Eucalyptus melliodora</i>	BR06, BR11, BR12
Youman's stringybark	<i>Eucalyptus youmannii</i>	BR06, BR07

* Denotes non-native species

Belah and brigalow plains on texture contrast soils



Landform	Level to gently undulating plains. Occurring on flat plains or sloping lowlands in the middle of the region around Billa Billa, Wyaga, Yagaburne, Mt Carmel, Moruya, Wynhari, and Kurumbul.
Woody vegetation	Tall, open forests of belah with brigalow, and understorey of wilga and false sandalwood. Occasionally associated with nipan, wild orange and limebush. Most of the belah plains were cleared of woody vegetation in the 1950s for prime cropping land.
Expected pasture composition	<i>* Denotes non-native "Expected Pasture Composition" species.</i> <i>Very little pasture in native wooded state; high pasture cover where treeless, often with sown pastures.</i>
Preferred	Brigalow grass, curly windmill grass, Queensland bluegrass.
Intermediate	Early spring grass, slender panic, fairy grass.
Non-preferred	Lovegrasses (weeping, dainty, woodland), white speargrass.
Annuals	Liverseed grass*, stinkgrass*.
Suitable sown pastures	Creeping bluegrass, digit grass, tall finger grass, Gatton panic, Rhodes grass, buffel grass. Barrel and burr medics, Caatinga stylo, desmanthus.
Introduced weeds	Prickly pear, velvet tree pear, lippia, mother-of-millions, harrisia cactus.
Soil	Friable, shallow, black or brown, texture-contrast soil (sodosols).
Description	Surface: Firm to hard-setting; Surface texture: clay loam; Subsoil texture: medium to heavy clay.
Water availability	Medium; effective rooting depth 60–110 cm, PAWC 110–140 mm.

Fertility	Low to medium.
Salinity	Non-saline or low salinity at the surface. Medium to very high salinity at depth (below 20 cm).
Sodicity	Strongly sodic subsoils.
pH	Neutral at surface, acid subsoils.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 534 – 678 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	2800 - 3930	30% (sown)	2.5 - 3.5
	10 TBA 25 FPC	1300 - 2100	30% (sown)	4.6 – 7.5
Buffel	0 TBA/FPC	3630 - 4620	35%	1.8 – 2.3

Enterprise

Growing and finishing.

Land use and management recommendations

- Suitable land for growing and finishing, and dryland cropping, with minor limitations.
- Undisturbed soils are generally well structured and permeable, becoming prone to dispersion when exposed.
- Minimum tillage on these soils may improve the overall structure and friability of seedbed.
- Deep tillage is not recommended. Soils below 0.5–1.0 m should be left undisturbed to reduce possibility of exposing sodic and acid subsoils.
- Maximise ground cover, replacing organic matter through long-term pasture phases, and adoption of conservation tillage practices should minimise soil disturbance and improve seedbed conditions.
- Manage grazing pressure to maximise ground cover and to minimise risk of erosion of dispersive soils.

Land use limitations

- Exposure of subsoils may cause problems with dispersion and acidity.
- Risk of erosion increases on the slopes.

Conservation features and related management

- Extensively cleared or thinned for cropping and pasture, with remaining brigalow and/or belah or other understorey *Acacia* species often forming small clumps or tree lines.
- As appreciable areas of native pastures or natural dense woodlands are rare, these clumps and tree lines of brigalow and/or belah are managed primarily as conservation reserves.
- Habitat for rare and threatened species including the nomadic painted honeyeater *Grantiella picta*. This species feeds on mistletoe fruits that grow on eucalypts and acacias.
- These communities are considered sensitive to fire.

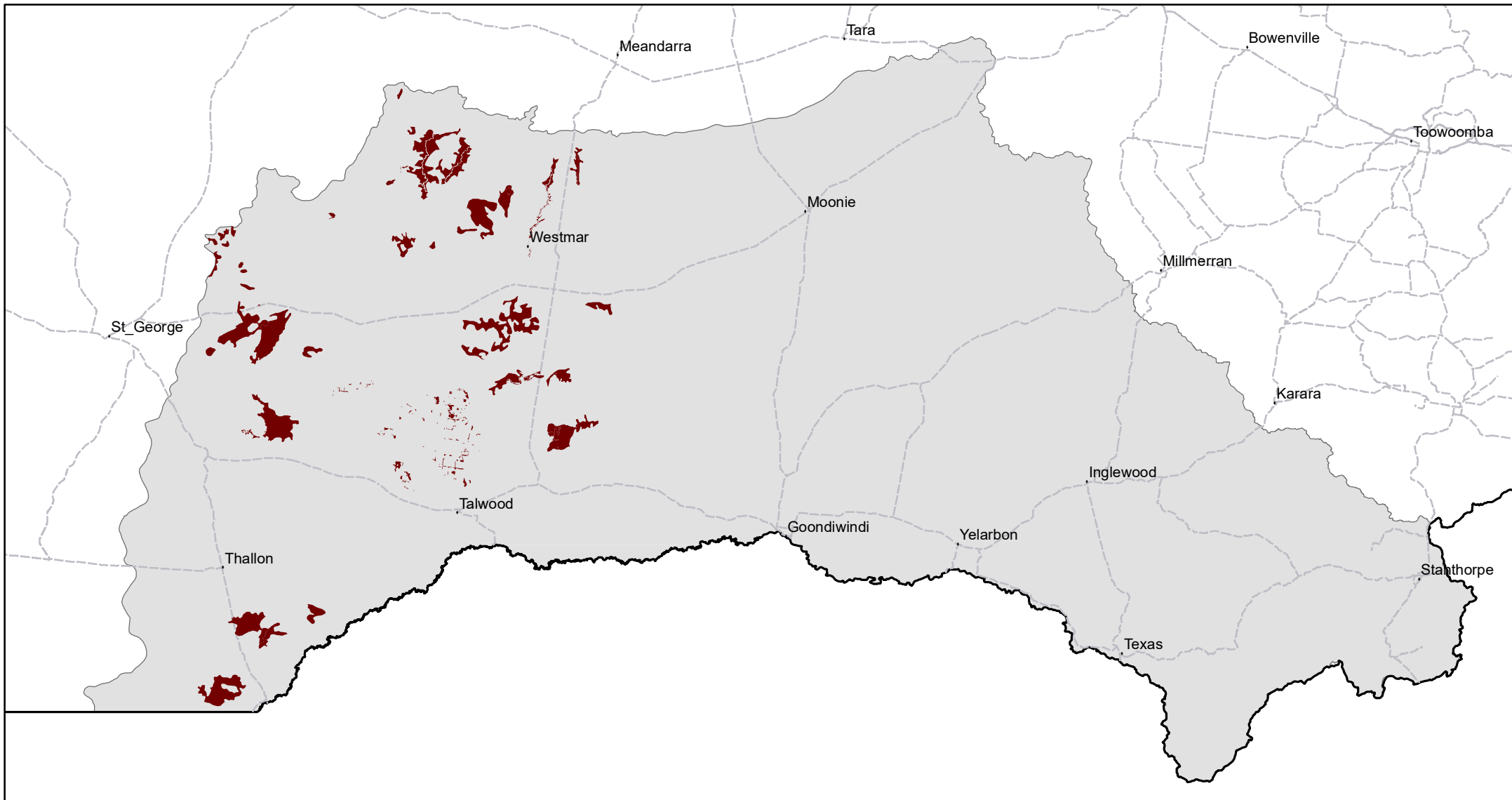
Regional Ecosystems

11.3.1d, 11.4.7, 11.4.1.

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Billa Billa. Soils associations (Lloyd 1977, 1980) F13, Ro4 Belah.

BR01 Belah and brigalow plains on texture contrast soils



Area of land type in region: 2%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 20%
Median FPC: 24%
Median TBA: 10 m²/ha



Queensland
Government

Brigalow belah +/- melonholes



Landform

Gently undulating to flat plains.

Occurring throughout the middle of the region (e.g. Commoron, Wandalli, Calingunee, Wycanna and Talwood).

Woody vegetation

Tall open forests of brigalow, belah and the occasional poplar box, mallee box, mollybox and yapunyah. Understory of wilga and false sandalwood, and, in damper areas around gilgais, black tea tree.

Most of the brigalow-belah land types were cleared of woody vegetation in the 1950s for prime cropping land.

Expected pasture composition

* Denotes non-native "Expected Pasture Composition" species.

Preferred

Queensland bluegrass, brigalow grass, curly windmill grass, Warrego summer grass.

Intermediate

Early spring grass, slender panic, fairy grass, gilgai grass, water couch.

Non-preferred

Lovegrasses (weeping, dainty, woodland).

Annuals

New Zealand spinach, twinleaf, budda pea, stinkgrass*.

Common forbs

Saltbushes.

Suitable sown pastures

Bambatsi panic and angleton bluegrass will stand some waterlogging, and purple pigeon grass on the heavier brigalow clays. Creeping bluegrass, digit grass, tall finger grass, Gatton panic, Rhodes grass, and buffel grass on the belah type clay/loams.

Snail, barrel and burr medics, Caatinga stylo, *Desmanthus*, leucaena (soils >120 cm).

Introduced weeds

Prickly pear, velvet tree pear, lippia, harrisia cactus, mother-of-millions.

Soil

Self-mulching, grey to dark cracking clays (vertosols) with melonholes.

Description

Surface: Moderately to strongly self mulching +/- gilgai; **Surface texture:** medium clay; **Subsoil texture:** heavy clay.

Water availability

Medium; effective rooting depth 90 cm in mound, 100 cm in depression; PAWC 130 mm in mound, 140 mm in depression.

Fertility

Low in mounds; medium in depressions.

Salinity

Non-saline at the surface with high to very high salinity below 40 cm.

Sodicity

Non-sodic surface; sodic from shallow depths (below 20 cm) to strongly sodic at depth.

pH

Slightly alkaline surface to upper subsoil, moderately acidic at depth.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 534 – 655 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	2730 - 3990	30%	2.4 - 3.6
	9 TBA 23 FPC	1280 - 2050	30%	4.8 – 7.6

Enterprise

Growing and finishing.

Land use and management recommendations

- Suitable for grazing of native and sown pastures; dryland cropping and forages.
- Rotate crops and legumes, or nitrogen fertiliser, to maximise production of high protein grain.
- Retain stubble on dryland crop fallows using minimum tillage.
- Testing of subsoils should be undertaken before levelling melonholes.
- Manage grazing pressure to maximise ground cover to maintain pasture vigour, encourage desirable grasses, and suppress woody weed growth.

Land use limitations

- Melonholes can cause difficulties with uneven relief, variability in surface condition and depth to subsoil, and sodicity, salinity or acidity near the surface.
- Melonholes restrict tillage and trafficability.
- Subsoils under mounds are usually very sodic and dispersible with high levels of salinity.
- Susceptibility to waterlogging and ponding (particularly in melonhole depressions).
- Woody weed regrowth (limebush, prickly pear).

Conservation features and related management

- Extensively cleared or thinned for cropping and pasture, with remaining brigalow and/or belah or other understorey *Acacia* species often forming small clumps.
- As appreciable areas of native pastures or natural dense woodlands are rare, these clumps of brigalow and/or belah are managed primarily as conservation reserves.
- Habitat for rare and threatened species including the nomadic painted honeyeater *Grantiella picta*. This species feeds on mistletoe fruits that grow on eucalypts and acacias.

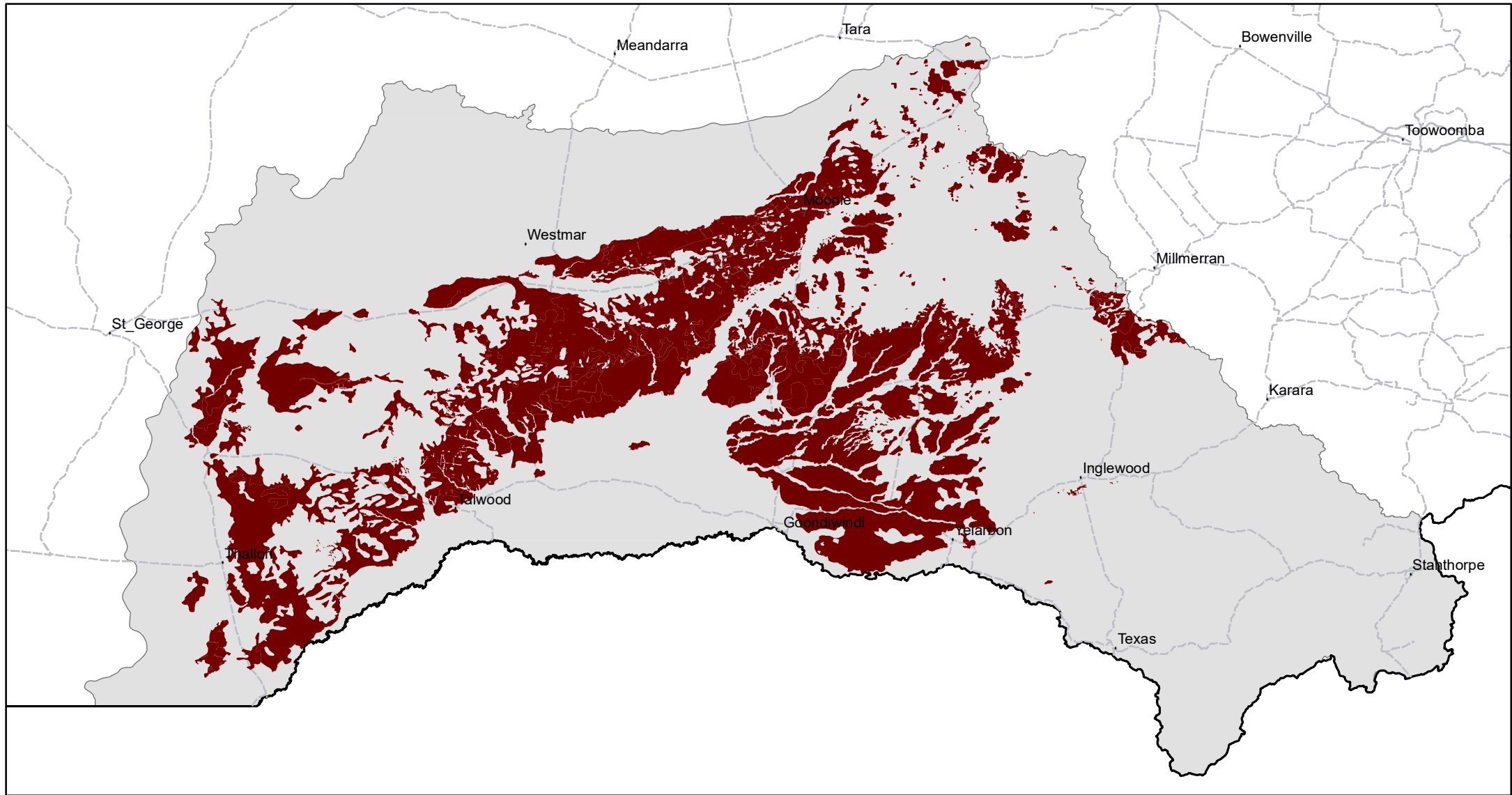
Regional Ecosystems

11.4.3, 11.9.5

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Commoron, Bungunya north. Soils associations (Lloyd 1977, 1980) F12, CC20 Melonhole Brigalow, MM1, 2 Red Belah country soils.

BR02 Brigalow belah +/- melonholes



Area of land type in region: 25%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 14%
Median FPC: 23%
Median TBA: 9 m²/ha



Queensland
Government

Bullock country



Landform

Gently dissected uplands.

Bullock country mainly occurs towards the east of region around Uranilla and Badgery.

Woody vegetation

Open forest of bullock and cypress pine.

Poplar box, narrow-leaved ironbark, mallee box and rusty gum may occur as emergents. Understoreys are generally absent.

Expected pasture composition

* Denotes non-native "Expected Pasture Composition" species.

Preferred

Pitted bluegrass, curly windmill grass, golden beard grass, silky browntop.

Intermediate

Early spring grass, lovegrasses.

Non-preferred

Poverty grass, purple and dark wiregrasses.

Annuals

Daisies.

Common forbs

Blue trumpet. Non-preferred species include saw-sedges and mulga fern.

Suitable sown pastures

Generally not suitable for sown pastures, although on areas of greater soil depth, digit grass, Rhodes and serradella can be sown with applied phosphorus.

Introduced weeds

Velvet tree pear, mother-of-millions.

Soil

Loamy, impermeable texture-contrast soil with hydrophobic surface (sodosols).

Description

Surface: Hard-setting; **Surface texture:** sandy loam; **Subsoil texture:** medium clay.

Water availability

Very low; effective rooting depth 20 cm, PAWC 40 mm.

Fertility

Very low.

Salinity

Medium to high salinity at depth.

Sodicity

Strongly sodic below 20 cm.

pH

Surface slightly acidic, neutral to slightly alkaline at depth.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 576 – 655 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	1980 - 2130	20%	6.9 – 7.4
	13 TBA 32 FPC	200 - 340	20%	43 – 71

Enterprise

Light grazing.

Land use and management recommendations

- Light grazing, beekeeping, sawlogs, wildlife conservation.
- Minimise surface disturbance to reduce high erosion risk of soil surface.
- Manage grazing pressure to maximise ground cover and to minimise erosion of dispersive soils.
- Opportunistic use of fire to control regrowth.
- Use spelling and rotational grazing practices to encourage pasture vigour and desirable species, to suppress wiregrasses and obtain fuel loads.

Land use limitations

- Very low fertility
- Very low PAWC
- Poor seedbed and subsoil conditions. Subsoils are usually impermeable and impenetrable to roots.
- Soils are highly erodible and dispersive in nature.
- Woody plant thickening.

Conservation features and related management

- This land type may provide habitat for rare and threatened flora species (such as *Acacia lauta*, *Dodonaea macrocarpa*) and a number of fauna species, particularly birds.

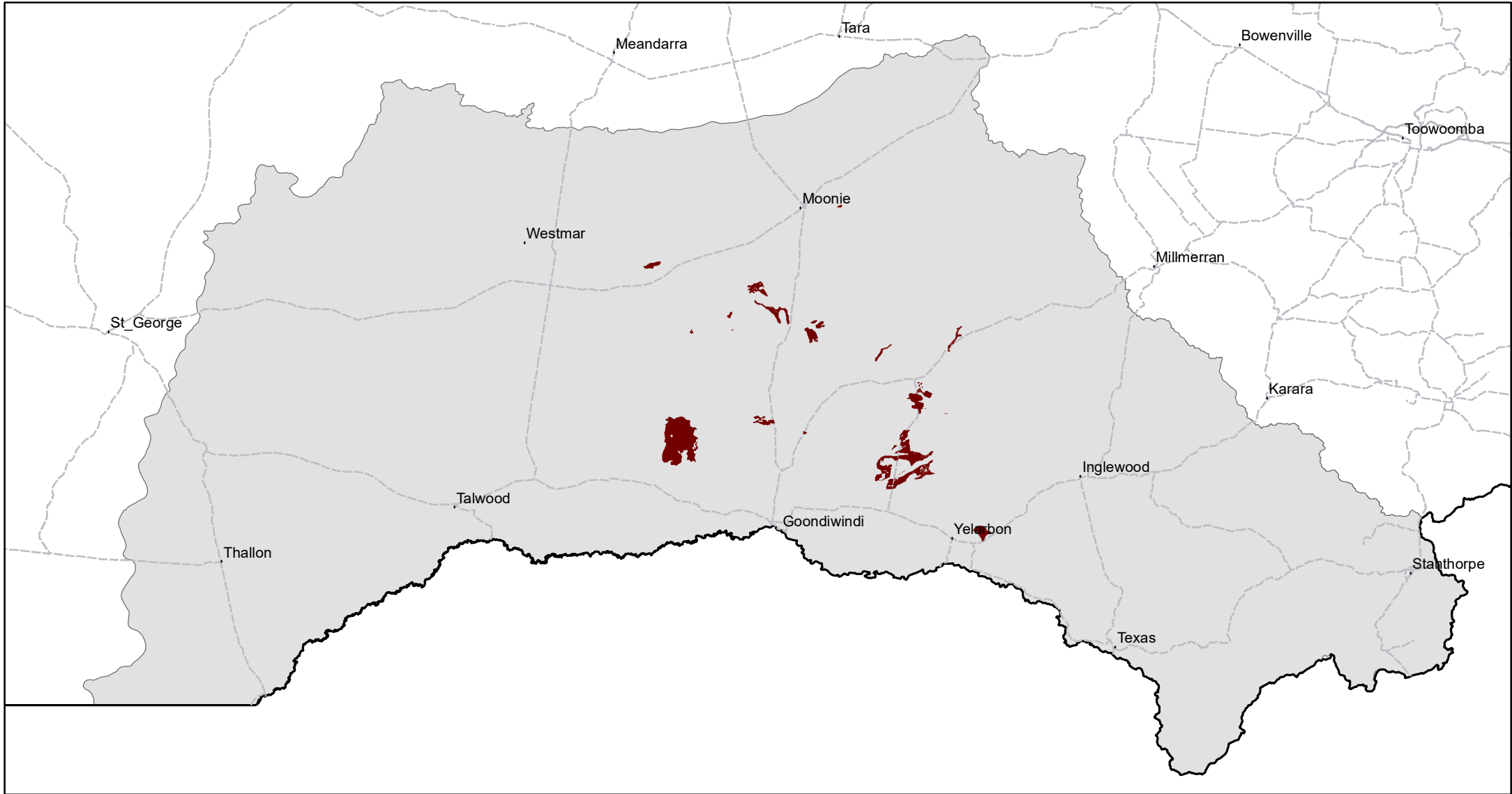
Regional Ecosystems

11.5.1, 11.5.1a.

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Boondandilla. Soils associations (Lloyd 1977, 1980) C6, Va 24 Bulloak soils, Va 28 Cypress pines and solodics.

BR03 Bulloak country



Area of land type in region: 1%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 43%
Median FPC: 32%
Median TBA: 13 m2/ha



Queensland
Government

Coolibah floodplains



Landform

Floodplain and river terraces.
Extensive open low-lying, flood prone clay plains of the lower Macintyre and Weir rivers.

Woody vegetation

Open floodplains with coolibah, as the dominant tree, occurring as tall isolated trees or isolated clumps. Myall, boonaree, belalie, belah, swamp wilga and, occasionally, black box may also occur.

Expected pasture composition

* Denotes non-native "Expected Pasture Composition" species.

Preferred

Curly Mitchell grass, Queensland bluegrass, coolibah grass, forest bluegrass, native millet, cupgrass.

Intermediate

Hoop Mitchell grass, shot grass, early spring grass, twirly windmill grass.

Non-preferred

Feathertop wiregrass, umbrella canegrass, white speargrass.

Annuals

Small Flinders grass, button grass.

Legumes

Darling peas, sesbania pea, cooper clover, burr medic (naturalised)*.

Common forbs

Sclerolaena (non-preferred).

Suitable sown pastures

Bambatsi panic, angleton bluegrass, purple pigeon grass.

Snail, barrel and burr medics, Caatinga stylo, *Desmanthus*, leucaena where not frequently or severely flooded.

Introduced weeds

Lippia, prickly pear.

Soil

Self-mulching, dark or grey cracking clays (vertosols).

Description

Surface: Periodic cracking, hard-setting or weakly to strongly self-mulching; **Surface texture:** medium to heavy clay; **Subsoil texture:** heavy clay.

Water availability

Medium; effective rooting depth 60–100 cm, PAWC 100–145 mm.

Fertility	Medium; low nitrogen and zinc, and low to very high phosphorus and potassium.
Salinity	Variable; low to highly saline below 80 cm.
Sodicity	Slightly sodic to sodic from 20–80 cm, occasionally strongly sodic below 80 cm.
pH	Surface neutral (pH 7.5–8), subsoil slightly alkaline (pH 8–9).

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 534 – 583 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	1670 - 2090	30%	4.7 – 5.8
	10 TBA 25 FPC	660 - 1170	30%	8.3 – 15

Enterprise

Cattle fattening and breeding, wool growing.

Land use and management recommendations

- Suitable for grazing of native and sown pastures; flood/irrigated cropping, forages and pastures; dryland forages and pastures.
- Rotate crops and legumes, or nitrogen fertiliser, to maximise production of high protein grain.
- Retain stubble on dryland crop fallows using minimum tillage.
- Avoid planting forage and legumes in areas prone to waterlogging and flooding.
- Manage grazing pressure to maximise ground cover to maintain pasture vigour, suppress wiregrasses, and limit woody weed growth.

Land use limitations

- Periodic, prolonged flooding.
- Soils are imperfectly drained, waterlogging and restricted trafficability in lower lying areas.
- Moderate dispersion below 50 cm.
- Woody weed invasion (e.g. lignum thickening) associated with flooding in lower lying areas.

Conservation features and related management

- These floodplain vegetation communities have been associated with high numbers of fauna species.
- Larger, older trees with hollows are important habitat for arboreal marsupials and provide nest sites for cockatoos and parrots. The branches provide roosting sites for waterbirds such as cormorants, ibis, spoonbills and egrets.
- Coolibah is one of the most important food trees for koalas, and the tree protects creeks and riverbanks from soil erosion.
- Other animals such as freshwater turtles, frogs, pygmy geese, whistling ducks and seasonal wetland plants are common in these communities.
- Localised stands of lignum provide good habitat and shelter for breeding ducks, and larger burrowing frogs.
- Coolibah regeneration is stimulated by flooding. Maturation of seedlings can be limited by overgrazing.

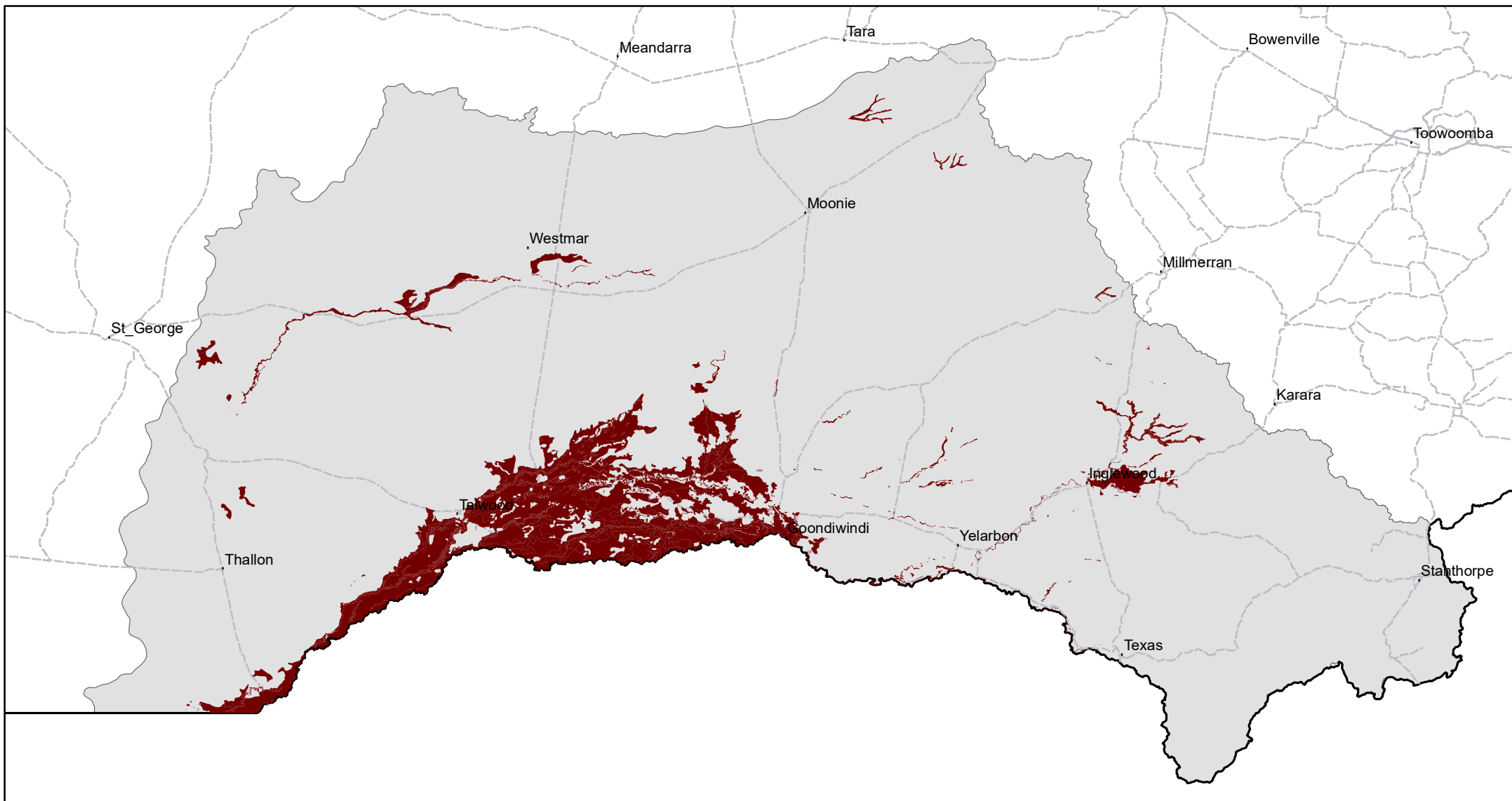
Regional Ecosystems

11.3.15, 11.3.16, 11.3.25, 11.3.27f, 11.3.27g, 11.3.27i, 11.3.28, 11.3.3, 11.3.37, 11.3.4

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Macintyre, minor occurrences of Lundavra. Soils associations (Lloyd 1980) CC17 Flooded country, Lm1 river flats.

BR04 Coolibah floodplains



Area of land type in region: 7%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 22%
Median FPC: 25%
Median TBA: 10 m²/ha



Queensland
Government

Cypress pine and carbeen forest on undulating sandy soils



Landform

Gently undulating, sandy plains and rises. Associated with relict alluvial plains and dune-like sandy ridges.

Mainly occurs along the upper Weir river and in the east of the region to Coolmunda dam.

Woody vegetation

Tall open forest or woodland of cypress pine, carbeen, tumbledown gum and rusty gum. Understorey usually absent or bulloak and wattles may occur.

Expected pasture composition

* Denotes non-native "Expected Pasture Composition" species

Preferred

Buffel grass*, golden beard grass, pitted bluegrass.

Intermediate

Silky umbrella grass, hairy panic, curly windmill grass, lovegrasses.

Non-preferred

Jericho wiregrass, purple lovegrass.

Annuals

Spiny burr grass*.

Legumes

Native glycines.

Common forbs

Galvanised burr (non-preferred).

Suitable sown pastures

Buffel grass (in the western areas), digit grass, Rhodes grass.

Wynn cassia and serradella on deeper sands.

Introduced weeds

African lovegrass, cat's claw creeper.

Soil

Deep sands to sandy texture-contrast soil (tenosols, sodosols).

Description

Surface: Loose or soft, structureless; **Surface texture:** sand or loamy sand; **Subsoil texture:** sand to loamy sand with clay segregations.

Water availability

Low; effective rooting depth 100 cm, PAWC 100 mm but rapidly drained.

Fertility

Low; very low organic C and N, medium P and K.

Salinity

Very low salinity throughout.

Sodicity

Non-sodic throughout.

pH

Neutral to slightly acid at the surface.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 547 – 655 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	1740 - 2590	25%	4.5 – 6.7
	14 TBA 35 FPC	440 - 680	25%	17 – 27

Enterprise

Breeding

Land use and management recommendations

- Light grazing (breeding and growing-out).
- Manage grazing pressure to maximise ground cover and minimise risk of wind erosion.
- Use spelling and rotational grazing practices to enable grasses to seed after burning or extended dry periods, to encourage pasture vigour, desirable species and to suppress wiregrasses.

Land use limitations

- Soils drain rapidly.
- Low fertility.
- High wind erosion risk if cleared or overgrazed.
- Pimelea poisoning possible (St George disease)

Conservation features and related management

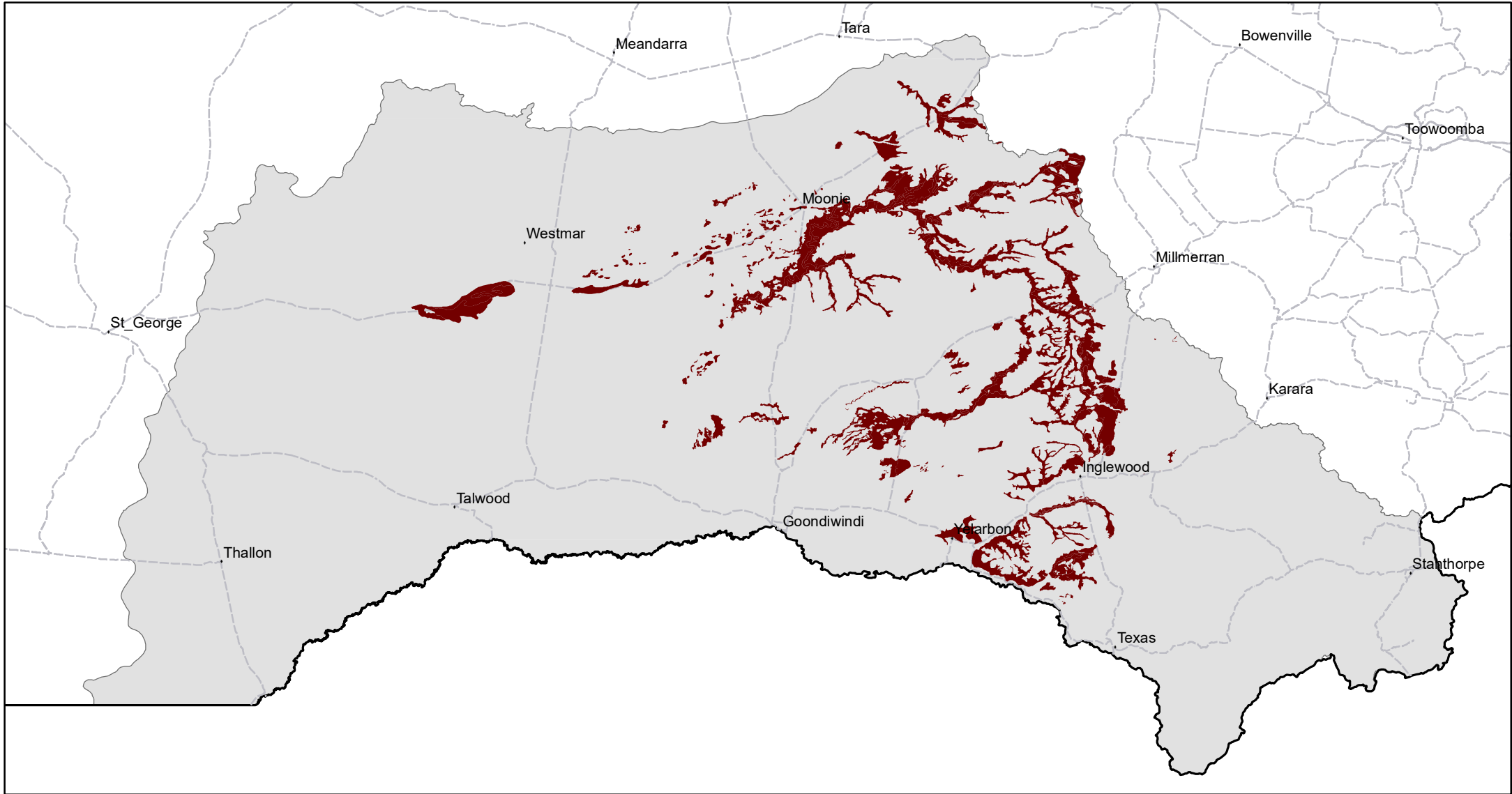
Regional Ecosystems

11.3.14, 11.5.20, 11.5.4, 11.5.4a, 11.5.5, 11.5.5a, 11.5.6.

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Broomfield and Goodar. Soils associations (Lloyd 1977, 1980) C5, Wa 13 Cypress pine sands and solodics.

BR05 Cypress pine and carbeen forest on undulating sandy soils



Area of land type in region: 6%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 80%
Median FPC: 35%
Median TBA: 14 m2/ha



Queensland
Government

Granite hills with New England blackbutt and stringybark



Landform

Deeply dissected mountains to undulating hills and ridges. Granite tors are common. Areas of granite hills occur in the eastern edge of the region around Eukey, Severnlea and Pozieres.

Woody vegetation

Tall, open forest or woodland of New England blackbutt, broad-leaved stringybark, tumbledown gum, Caley's ironbark, Youman's stringybark, yellow box, black cypress pine, dogwood. Often associated with mixed species of shrubs (predominately acacias and banksias).

Expected pasture composition

** Denotes non-native "Expected Pasture Composition" species*

Preferred

Wallaby grass, pitted bluegrass, kangaroo grass, paspalum*, weeping grass.

Intermediate

Barbwire grass, corkscrew grass, plume grass, forest hedgehog grass.

Non-preferred

Wiregrasses (purple and dark), weeping lovegrass, blady grass.

Legumes

Glycine, *Desmodium*.

Common forbs

Bracken fern (non-preferred).

Suitable sown pastures

Digit grass, Brunswick grass, tall fescue, annual ryegrass.

White clover, sub clover, serradella (on deeper sands).

Introduced weeds

Blackberry, African lovegrass, cosmos weed, whisky grass.

Soil

Description

Shallow, loamy sands and gritty sands (tenosols).

Surface: Variable, loose to firm; **Surface texture:** loamy coarse sand; **Subsoil texture:** clayey coarse sand with quartz gravel.

Water availability

Very low, PAWC 25–50 mm; depth to hardpan or rock usually 25–50 cm.

Fertility

Low; low organic C, N, P and medium K and Zn.

Salinity

Non-saline

Sodicity

Non-sodic

pH

Slightly acid surface, medium acid subsoil.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 678 – 748 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	2770 - 2770	20%	5.3 – 5.3
	20 TBA 47 FPC	280 – 770	20%	19 – 52

Enterprise

Beef and sheep breeding (and wool production).

Land use and management recommendations

- Grazing of native pasture on some areas depending on slope.
- Suitable for nature conservation / bee keeping.
- Small areas of low slope may be suitable for sown pasture.
- Dense shelter belts needed in winter for livestock.
- Manage grazing pressure to maximise ground cover and minimise soil loss.
- Spelling of pastures to maintain cover, pasture vigour and to limit undesirable species.

Land use limitations

- Erosion risk (due to steep slopes).
- Stoniness/ rockiness; waterlogging may occur due to hardpans or rock.
- Shallow effective rooting depth and very low water holding capacity.
- Infertility.

Conservation features and related management

- Habitat for a number of rare and threatened flora species including *Boronia granitica*, *B. repanda*, *B. amabilis*, *Callitris monticola*, *Grevillea scortechinii*, *Hibbertia elata*, *Caladenia atroclavia*, *Pultenaea stuartina*, *Persoonia daphnoides*, *Phebalium whitei*, *P. rotundifolium*, *Thelionema grande* and *Huperzia varia*.
- Remaining areas of this land type should be retained to establish connection with other areas of remnant vegetation and provide wildlife corridors.

Regional Ecosystems

13.12.1, 13.12.10, 13.12.2, 13.12.6, 13.12.6a,

Land Resource Areas; Land types; Soil associations

Land types (Maher 1996) 4 Rolling granite mountains, 5 Granite hills, 6 Undulating low granite hills.

BR06 Granite hills with New England blackbutt and stringybark



Area of land type in region: 1%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 81%
Median FPC: 47%
Median TBA: 20 m2/ha



Queensland
Government

Granite plains and rises with mixed grassy woodlands



Landform	Gently undulating plains to undulating rises. Large areas occur in the south-east of the region around Ballandean, Eukey and Stanthorpe. Some patches occur south-west of Graymare.
Woody vegetation	New England blackbutt, tumbledown gum, Caley's ironbark, Youman's stringybark, broad-leaved stringybark, blue gum.
Expected pasture composition	<i>* Denotes non-native "Expected Pasture Composition" species</i>
Preferred	Pitted bluegrass, wallaby grass, silky browntop, paspalum*, weeping grass.
Intermediate	Barbwire grass, plume grass, forest hedgehog grass.
Non-preferred	Wiregrasses, weeping lovegrass, blady grass.
Annuals	Awnless barnyard grass*, summer grass.
Legumes	Cluster clover*, glycine.
Common forbs	Fringe rushes. Non-preferred species include bracken fern.
Suitable sown pastures	Digit grass, Brunswick grass, tall fescue, annual ryegrass. White clover, sub clover, serradella (on deeper sands).
Introduced weeds	Blackberry, African lovegrass, cosmos weed, whiskey grass.
Soil	Deep, bleached dark grey to yellowish brown sandy clay loam texture-contrast soil (kurosols, sodosols).
Description	Surface: Hard-setting; Surface texture: bleached, sandy clay loam to loamy sand; Subsoil texture: coarse sandy light clay to sandy clay loam.

Water availability

Fertility

Salinity

Sodicity

pH

Long-term carrying capacity information (A condition)

Very low to low, PAWC 36–58 mm, depending on surface soil depth (30–60 cm).

Low to medium; medium organic C and P, low N, high K and Zn.

High below 50 cm.

Sodic to strongly sodic subsoils.

Surface neutral to slightly acid, strongly acid at depths.

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 624 – 748 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	2770 - 2770	20%	5.3 – 5.3
	14 TBA 35 FPC	720 - 1490	20%	10 – 20

Enterprise

Land use and management recommendations

Breeding and fattening.

- Suitable for grazing on native and sown pastures.
- Suitable for horticulture on lower slopes.
- Minimal ground disturbance as dispersive soils erode easily.
- Manage grazing pressure to maximise ground cover and minimise soil loss.
- Spelling of pastures to maintain cover, vigour and limit undesirable species.
- Use conservation cropping measures, implementing runoff control measures on slopes >1%, and rotate between pasture (3–6 years) and fodder cropping (up to 3 years).

Land use limitations

- Hard-setting surfaces.
- Low fertility and very low to low water holding capacity.
- Poorly structured and drained subsoils that may cause waterlogging (particularly in winter).
- Rocky outcrops restrict cultivation opportunities.

Conservation features and related management

- Habitat for a number of rare and threatened plant species including patchily distributed *Eucalyptus interstans*; the uncommon Baker's and green mallees in the Inglewood-Warwick area; species at the northern limit of their geographical range (*E. magnificata*, *Pterostylis woollsii*, *Grevillea scortechinii*, *Persoonia daphnoides*); species with very limited distributions (*Macrozamia viridis*) and the only known Queensland population of *Grevillea juniperina*.
- Extensively cleared or thinned for pasture, agriculture and horticulture, particularly on the lower slopes with deeper soils, with remaining areas subject to dieback and invasion by blackberry.
- Remaining areas of this land type should be retained to establish connection with other areas of remnant vegetation and provide wildlife corridors.

Regional Ecosystems

11.9.9, 11.9.9a, 13.12.3, 13.12.5, 13.12.8, 13.12.9

Land Resource Areas; Land types; Soil associations

Land type (Maher 1996) 9 Undulating granite plains, 10 Granite rises – texture contrast soils.

BR07 Granite plains and rises with mixed grassy woodlands



Area of land type in region: 2%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 60%
Median FPC: 33%
Median TBA: 14 m²/ha



Queensland
Government

Jump-ups



Landform

Undulating areas with ridges and 'jump-ups', through to stony hill and ridges of dissected uplands scarp lines.

Jump-up land types predominate in the north (around Uranilla) and north-west (around Inglewood) of the region, with small areas to the west past Arden.

Woody vegetation

Tall woodlands of silver-leaved ironbark and narrow-leaved ironbark. Associated species include poplar box, cypress pine, mulga, bendee, red ash, bulloak and false sandalwood.

Expected pasture composition

** Denotes non-native "Expected Pasture Composition" species*

Preferred

Small mulga Mitchell grass, curly windmill grass.

Intermediate

Slender panic, hooky grass, gilgai grass, purple lovegrass, poverty grass, wiry panic.

Non-preferred

Purple wiregrass, many-headed wiregrass, dark wiregrass.

Annuals

Suitable sown pastures

Not suitable for sown pastures.

Introduced weeds

Mother-of-millions.

Soil

Shallow, gravelly or stony lithosol or red earth (kandosols).

Description

Surface: Hard-setting; **Surface texture:** Structureless loam; **Subsoil texture:** clay loam.

Water availability

Low to very low; effective rooting depth 30 cm, PAWC 55 mm and rapidly drained.

Fertility

Low to very low; low Zn and N, very low P and medium to high K.

Salinity

Very low.

Sodicity

Non-sodic.

pH

Slightly acid (5–6) throughout profile.

Long-term carrying capacity information (A condition)

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

Median annual rainfall 576 – 655 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	1530 - 1660	20%	8.8 – 9.5
	15 TBA 36 FPC	170 - 230	20%	64 – 86

Enterprise

Light grazing.

Land use and management recommendations

- Not suitable for development, suitable for saw logs.
- Manage grazing pressure to maximise ground cover and minimise risk of erosion, encourage pasture vigour and desirable species, and to suppress wiregrasses.

Land use limitations

- Limited water holding capacity due to shallow soil depth and high surface runoff.
- Very low fertility.
- Shallow soil depth and stony or gravelly profile.
- Woody weed regrowth.

Conservation features and related management

- Potential habitat for a number of rare and threatened flora species including green mallee *Eucalyptus viridis*, *Micromyrtus carinata* and *Micromyrtus patula*.

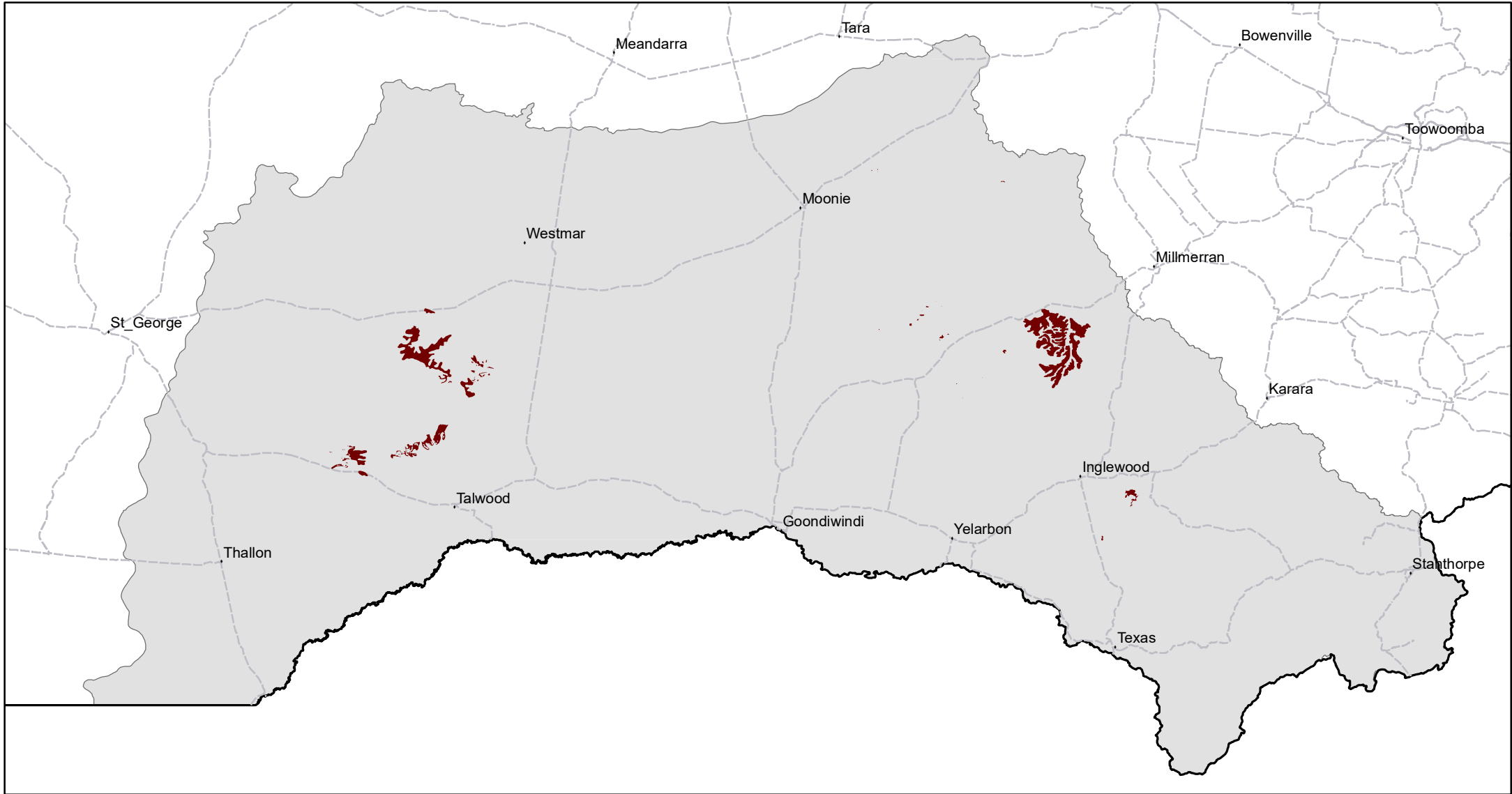
Regional Ecosystems

11.7.1, 11.7.2, 11.7.4c, 11.7.5, 11.7.7

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Jumpup and Westmar. Soils associations (Lloyd 1977, 1980) C7, My3 Red Earths, Um Lithosols, Fz 1–3 Rocky forest country.

BR08 Jump-ups



Area of land type in region: 1%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 73%
Median FPC: 36%
Median TBA: 15 m2/ha



Queensland
Government

Poplar box flats



Landform

Plains associated with past and present drainage lines.

Poplar box flats are associated with major creeks throughout the Border Rivers including wide alluvial plains of the lower Macintyre and Weir rivers.

Woody vegetation

Poplar box woodlands with false sandalwood and wilga understorey. Associated species include whitewood, leopardwood, ironwood, kurrajong, boonaree, mallee box, Blakely's red gum and fuzzy box (in granite/traprock).

Expected pasture composition

* Denotes non-native "Expected Pasture Composition" species

Preferred

Queensland bluegrass, pitted bluegrass, kangaroo grass.

Intermediate

Windmill grass, tall chloris, golden beard grass, hairy panic.

Non-preferred

Corkscrew grass, rough speargrass, granite lovegrass

Annuals

Mueller's saltbush, joyweed.

Common forbs

Common fringe rush (non-preferred).

Suitable sown pastures

Creeping bluegrass, digit grass, tall finger grass, Gatton panic, Rhodes grass, buffel grass (in the west).

Barrel, burr and hybrid disc/strand medics, Caatinga stylo.

Introduced weeds

Noogoora burr, lippia, African lovegrass, African boxthorn, cat's claw creeper.

Soil

Description

Grey and red-brown texture-contrast soils (chromosols, sodosols).

Water availability

Surface: Hard-setting, frequently gravelly; **Surface texture:** sandy clay loam to clay loam; **Subsoil texture:** medium to heavy clay.

Fertility

Low to medium, PAWC 57–100 mm.

Salinity

Low–medium.

Sodicity

High to very high in subsoil.

pH

Variable; non-sodic to strongly sodic from 50 cm depth

Acid in surface and strongly alkaline in subsoil.

Long-term carrying capacity information (A condition)

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

Median annual rainfall 538 – 583 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 - 2650	30%	3.7 - 3.7
	9 TBA 23 FPC	990 - 1260	30%	7.7 – 9.8

Enterprise

Breeding and growing out.

Land use and management recommendations

- Suitable for grazing of native and sown pastures, forage cropping.
- Maintain maximum ground cover to minimise erosion of dispersive soils and formation of scalds.
- Use spelling and rotational grazing practices to encourage pasture vigour and desirable species, to suppress wiregrasses and obtain fuel loads.
- Grazing and burning practices are important controls of regrowth and woody weeds.

Land use limitations

- Hard-setting surface and impermeable, poorly structured subsoils.
- Low water holding capacity.
- Prone to flooding and seasonal waterlogging.
- Dispersive subsoils prohibit deep ploughing or ripping.
- Cropping limited on low-lying areas due to risk of erosive flooding.

Conservation features and related management

- Land type has been extensively cleared and modified for crops and pastures.
- Extensively cleared or modified by grazing.
- Little or no representation in conservation reserves.
- Woodlands provide important habitat for arboreal mammals and bird species
- Lots of hollow logs provide nesting sites for birds and sanctuary for bats and reptiles
- Habitat for rare and threatened flora species including *Homopholis belsonii*.

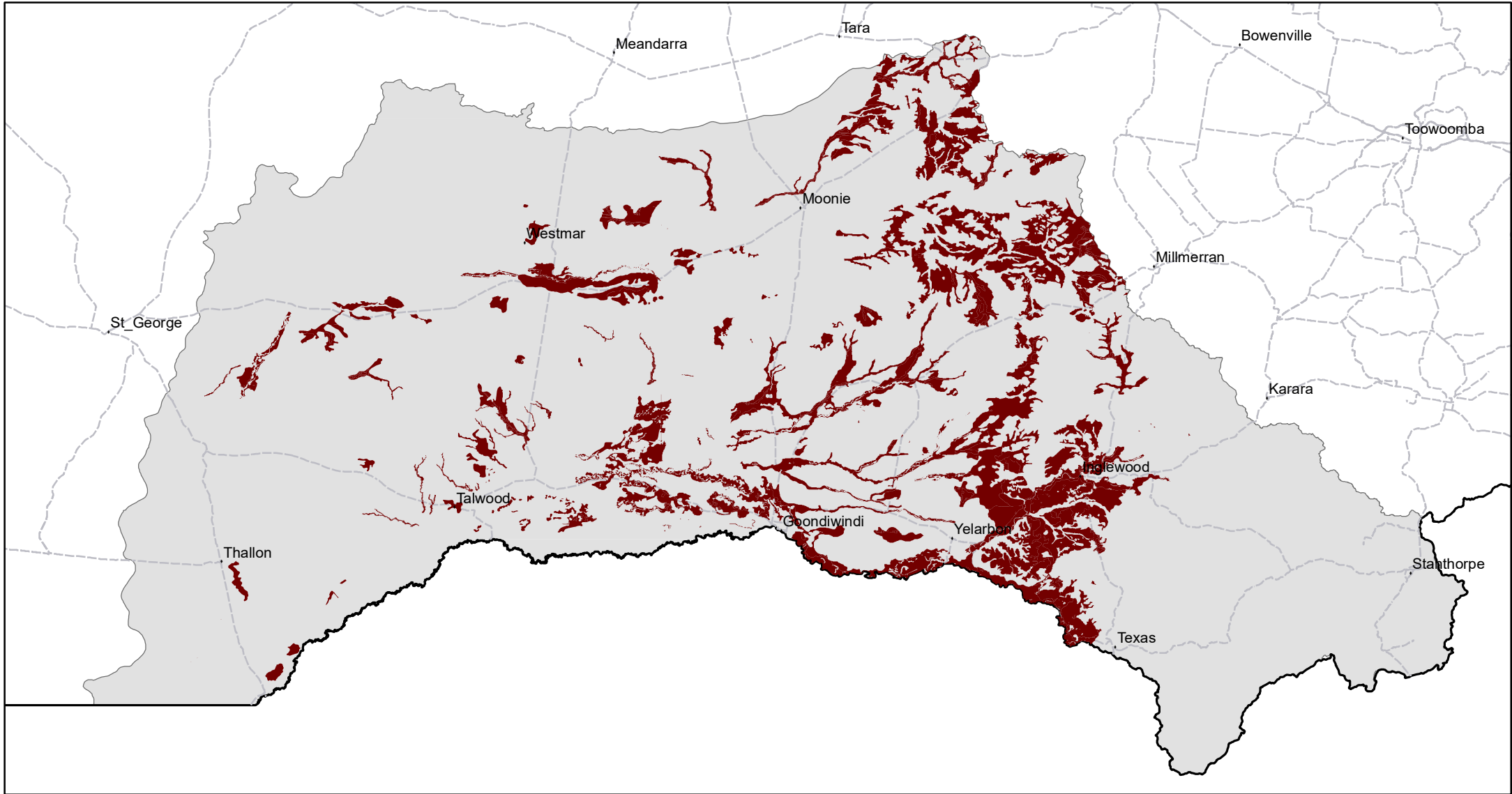
Regional Ecosystems

11.3.17, 11.3.2, 11.4.10, 11.4.12.

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Serpentine, Boogara. Soils associations (Lloyd 1980) Si 2, Hg1–2 Box country. Land type (Maher 1996) 2 Granite/traprock alluvial plains and 3 Traprock/sandstone alluvial plains.

BR09 Poplar box flats



Area of land type in region: 12%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 54%
Median FPC: 23%
Median TBA: 9 m²/ha



Queensland
Government

Poplar box on red soils



Landform

Gently undulating plains and rises, occasionally low hills.

Extensive areas occur in the west of the region around Weengallon, Geralda and Wandibingie.

Woody vegetation

Poplar box woodlands with silver-leaved ironbark, cypress pine, mulga (in patches) and kurrajong associated species. An understorey of false sandalwood and/or wilga is usually present.

Expected pasture composition

** Denotes non-native "Expected Pasture Composition" species*

Preferred

Mulga Mitchell grass, curly windmill grass, kangaroo grass, cotton panic grass, pitted bluegrass, hairy panic, buffel grass*, black speargrass, barbwire grass.

Intermediate

Tall chloris, windmill grass, slender bottlewashers, small mulga Mitchell grass.

Non-preferred

Purple wiregrass, rough speargrass.

Annuals

Legumes

Glycine pea, slender tick tree foil.

Suitable sown pastures

Digit grass, tall finger grass, creeping bluegrass, buffel grass.

Woolly pod vetch, Caatinga stylo, barrel and hybrid disc/strand medics (where pH >6).

Introduced weeds

African boxthorn, African lovegrass, tree pear.

Soil

Red earth (kandosols) or solodic (sodosols).

Description

Surface: Hard-setting; **Surface texture:** clay loam to loam; **Subsoil texture:** clay loam, medium clay sometimes with shot gravel layer.

Water availability

Low to moderate; effective rooting depth 50–100 cm, PAWC 80–135 mm.

Fertility

Low; low to medium organic C and N, very low P, high to very high K, low to medium Zn.

Salinity

Generally very low salinity (red earth); some areas low to medium salinity below 80 cm (solodic).

Sodicity

Non-sodic (red earth); some areas slightly sodic below 80 cm (solodic).

pH

Acid (6.0 at surface to 4.5 at depth) (red earth); neutral to alkaline at depth (solodic).

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 469 – 547 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	1440 - 1590	25%	7.4 – 8.1
	8 TBA 20 FPC	750 - 780	25%	15 – 16

Enterprise

Breeding and growing out.

Land use and management recommendations

- Suitable for short-term rotational dryland cereal and forage cropping.
- Use spelling and rotational grazing practices to encourage pasture vigour and desirable species, to suppress wiregrasses and obtain fuel loads.
- Maintain land in good condition with high groundcover to limit pimelea poisoning (St George disease) in cattle
- Use of forage crops is an option every 8–10 years to renovate sown pastures and control regrowth.

Land use limitations

- Low fertility.
- Low PAWC.
- Adverse seedbed conditions.
- Woody regrowth.

Conservation features and related management

- Poplar box woodlands have been extensively cleared and modified.
- These woodlands can support a high diversity of fauna including mammals, birds and insectivorous bats.
- Regrowth can cause high understorey shrub densities.
- Use of fire could assist in controlling regrowth and enhance productivity and habitat potential of the land type.

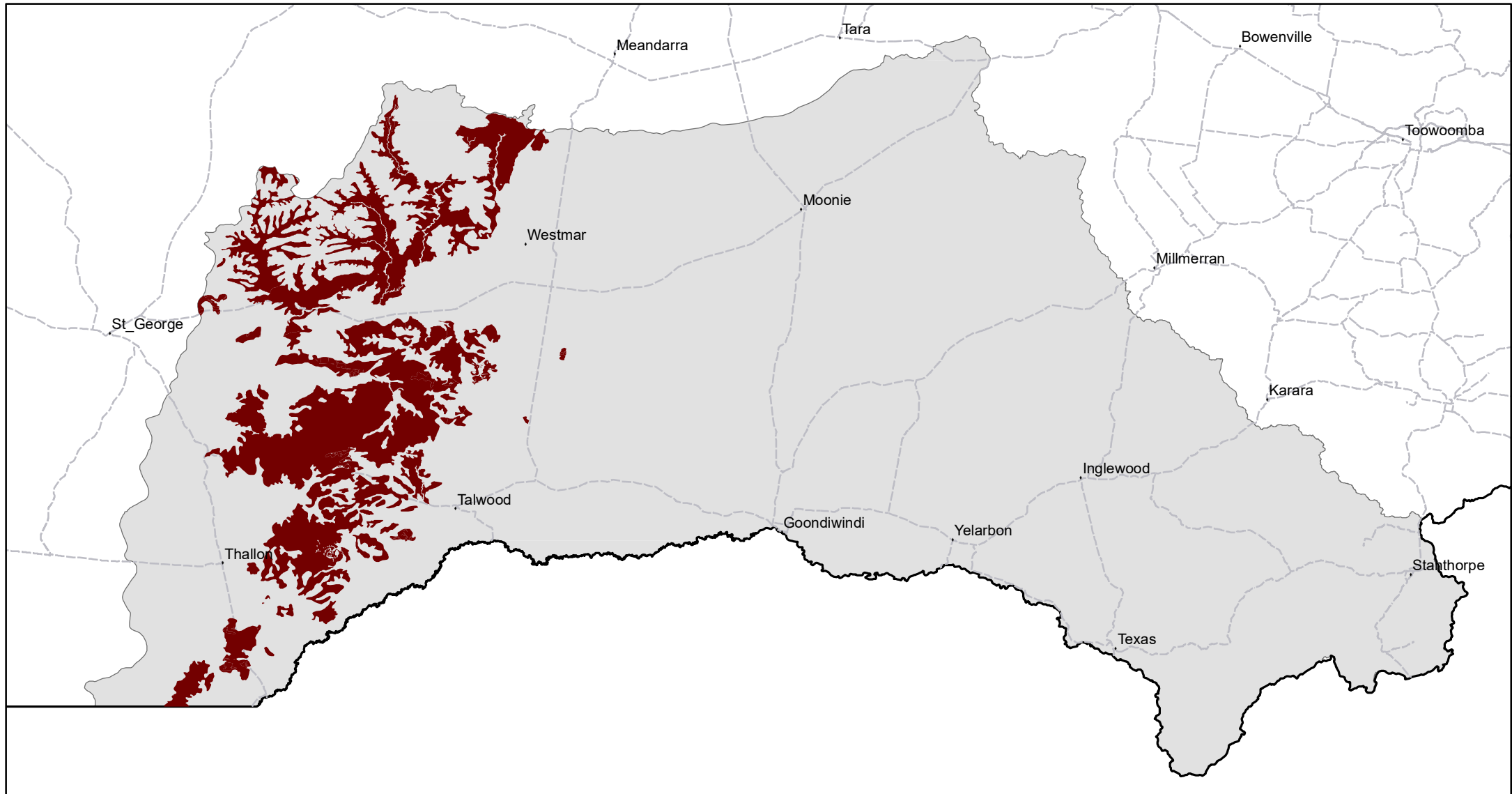
Regional Ecosystems

11.5.13.

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Geralda. Soils associations (Lloyd 1980) My5.

BR10 Poplar box on red soils



Area of land type in region: 10%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 29%
Median FPC: 21%
Median TBA: 8 m²/ha



Queensland
Government

Traprock plains with grassy box woodlands



Landform

Gently undulating plains and lower hillslopes.
Scattered areas occur through the east of the region around Karara and Thane.

Woody vegetation

Grey box, fuzzy box and yellow box grassy woodland. Understory of varying densities of peach bush, wild rosemary and wattles.

Expected pasture composition

** Denotes non-native "Expected Pasture Composition" species*

Preferred

Queensland bluegrass, pitted bluegrass, wallaby grass, weeping grass, paspalum*, windmill grass.

Intermediate

Barbwire grass, slender chloris, hairy panic, forest hedgehog grass.

Non-preferred

Wiregrasses (purple, dark), shorthair plume grass, five-minute grass.

Legumes

Cluster clover*, haresfoot clover, glycine, *Desmodium*.

Common forbs

Kidneyweed (non-preferred).

Suitable sown pastures

Digit grass, forest bluegrass, pertusa.
Barrel and burr medics (pH >6), rose clover, cluster clover, sub clovers, lucerne, Biserrula.

Introduced weeds

Coolatai grass, African lovegrass, tree pear.

Soil

Shallow to moderately deep, gravelly loams and clay loams (sodosols).

Description

Surface: Hard-setting, gravelly; **Surface texture:** clay loam; **Subsoil texture:** clay.

Water availability

Very low to low; effective rooting depth 50 cm, PAWC 22–64 mm (depending on gravel and rock content).

Fertility

Low; medium organic C and N, very low P, medium K and Zn.

Salinity

High salinity in subsoil below 50 cm.

Sodicity

Sodic to strongly sodic subsoils.

pH

Medium acid surface, slightly acid to mildly alkaline subsoils.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 624 – 748 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	2560 - 2880	20%	5.1 – 5.7
	10 TBA 25 FPC	1330 - 1860	20%	7.9 – 11

Enterprise

Sheep and cattle breeding.

Land use and management recommendations

- Suitable for grazing native pastures and beekeeping.
- Limited suitability for establishing and grazing sown pastures on the lower sloping, deeper soils.
- Manage grazing pressure to maximise ground cover and to minimise erosion of dispersive soils and formation of scalds.
- Use spelling and rotational grazing practices to encourage vigour and desirable pasture species, allow seed-setting and to suppress wiregrasses.

Land use limitations

- Surface stone and gravelly subsoil.
- Low fertility, very low water holding capacity.
- Impermeable, erodible subsoils.
- Overgrazed and over-cleared areas are susceptible to scalding, especially at break of slope above flats.
- Shrub regrowth.

Conservation features and related management

- These grassy woodlands have been extensively cleared and modified.
- Potential habitat for rare and threatened flora species including *Eucalyptus terrica*, a species with a localised distribution, wattles (*Acacia pubifolia*, *A. latisepala*, *A. brunioides subsp. Granitica*), *Grevillea scortechinii*, *Olearia gravis*, *Cryptandra lanosiflora*, *Macrozamia viridis*.
- The woodlands are also important for honey flora.
- Remaining areas of this land type should be retained to establish connection with other areas of remnant vegetation and provide wildlife corridors.

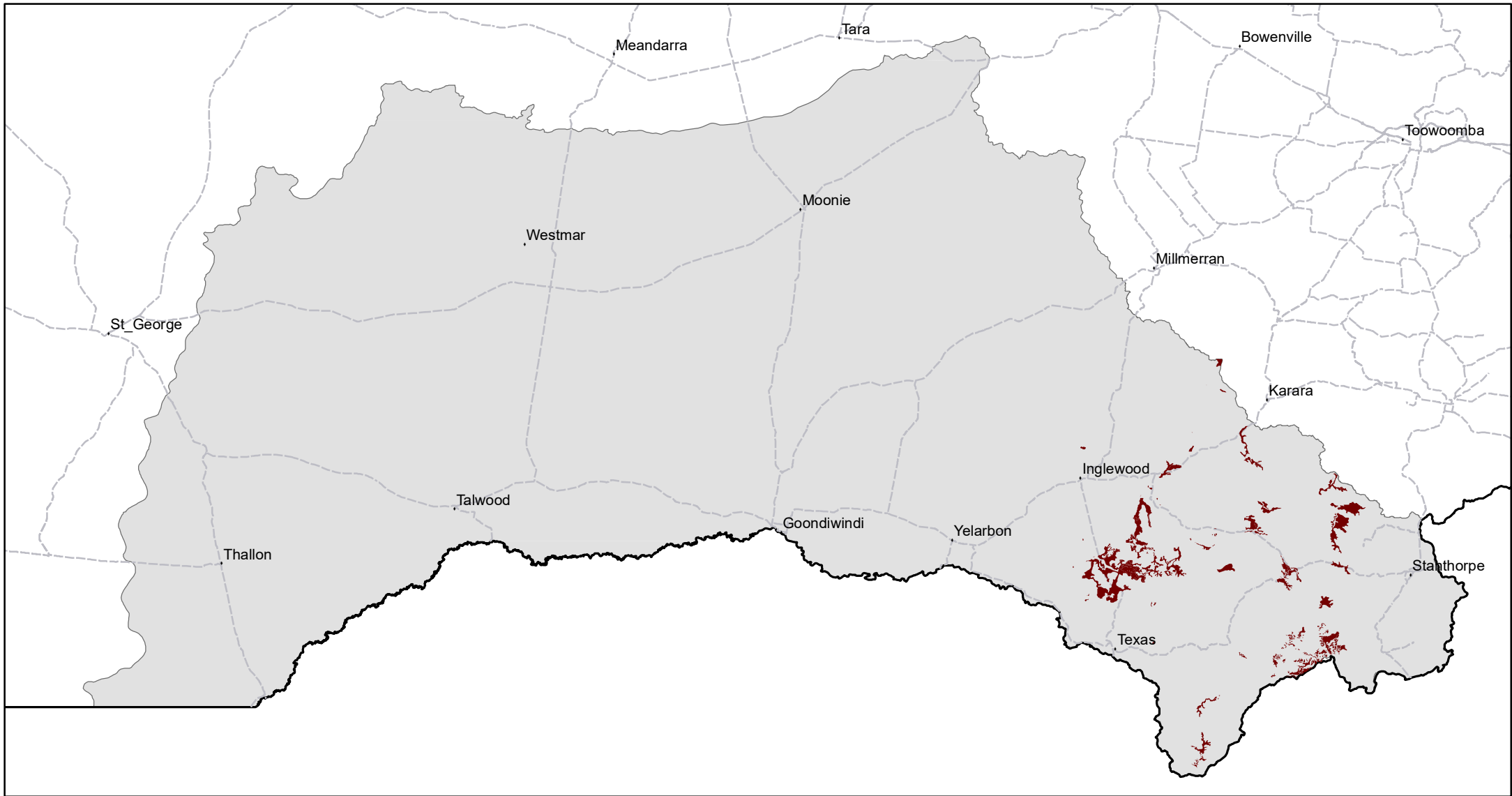
Regional Ecosystems

11.3.26, 11.9.13, 13.11.8, 13.11.8a.

Land Resource Areas; Land types; Soil associations

Soils association (Lloyd 1977) D10 shallow gravelly loams over clay. Land types (Maher 1996) 19 Low traprock hills, 20 Traprock plains.

BR11 Traprock plains with grassy box woodlands



Area of land type in region: 1%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 60%
Median FPC: 25%
Median TBA: 10 m2/ha



Queensland
Government

Traprock hills with narrow-leaved ironbark and tumbledown gum



Landform

Rolling to undulating traprock hills

This land type occurs in the west of the region between Inglewood and Stanthorpe shires with large areas near Glenylon dam and Pikedale.

Woody vegetation

Woodlands of narrow-leaved ironbark, tumbledown gum, spotted gum, silver-leaved ironbark, cypress pine, grey box, fuzzy box, yellow box, and black pine. Understorey of wild rosemary, hophbush and peach bush.

Expected pasture composition

** Denotes non-native "Expected Pasture Composition" species*

Preferred

Queensland bluegrass, pitted bluegrass, wallaby grass, weeping grass, paspalum*, windmill grass.

Intermediate

Barbwire grass, corkscrew grass, hedgehog grass.

Non-preferred

Wiregrasses (purple, dark), shorthair plumegrass.

Annuals

Legumes

Cluster clover*, haresfoot clover*, glycine, *Desmodium*.

Common forbs

Kidneyweed (non-preferred).

Suitable sown pastures

Digit grass, forest bluegrass, pertusa.

Sub clover, rose clover, cluster clover, barrel and burr medics, and lucerne (on alkaline soils).

Introduced weeds

African lovegrass.

Soil

Shallow to very shallow, gravelly clay loams with rock fragments in subsoils (tenosols).

Description

Water availability

Fertility

Salinity

Sodicity

pH

Surface: Hard-setting, gravelly; **Surface texture:** clay loam; **Subsoil texture:** clay loam above weathered rock (at various depths).

Very low, effective rooting depth 20 cm, PAWC 29 mm.

Low; low organic C and N, medium P and Zn, high K.

Non-saline

Non-sodic

Neutral surface with mildly alkaline subsoil.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 579 – 748 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	2080 - 2150	20%	6.8 – 7.0
	11 TBA 27 FPC	810 - 1420	20%	10. – 18

Enterprise

Sheep and cattle breeding.

Land use and management recommendations

- Suitable for light grazing of native and sown pastures, and horticulture (stone fruit).
- Shelter belts and windbreaks are essential.
- Darling pea may cause poisoning in livestock.
- Maintain maximum ground cover to minimise erosion and formation of scalds.
- Implement rotational grazing and spelling of pastures to maintain pasture vigour, suppress wiregrasses and limit woody weed growth.
- Control of regrowth with fire if possible.

Land use limitations

- Steep slopes.
- Surface stone, gravel and rock fragments in subsoils.
- Regrowth (e.g. *Callitris*) and woody shrubs.
- Overgrazed areas are susceptible to scalding.

Conservation features and related management

- Extensively cleared or thinned for pasture leaving this land type highly fragmented.
- This land type, particularly in relation to elevation and aspect, provides habitat for the rare and threatened fauna, regent honeyeater *Xanthomyza phrygia* and some flora with very restricted distributions.
- Localised occurrences of *Eucalyptus terrica*, the mallees (*E. bakeri*, *E. viridis*) and *Melaleuca decora*.
- Habitat fragments, particularly with honeyeater nesting sites, should be retained to develop a network of wildlife corridors. Conservation value of these habitat corridors could be enhanced through controlled grazing to allow for the retention of ground vegetation and cover, and encourage regeneration of favoured habitat trees.

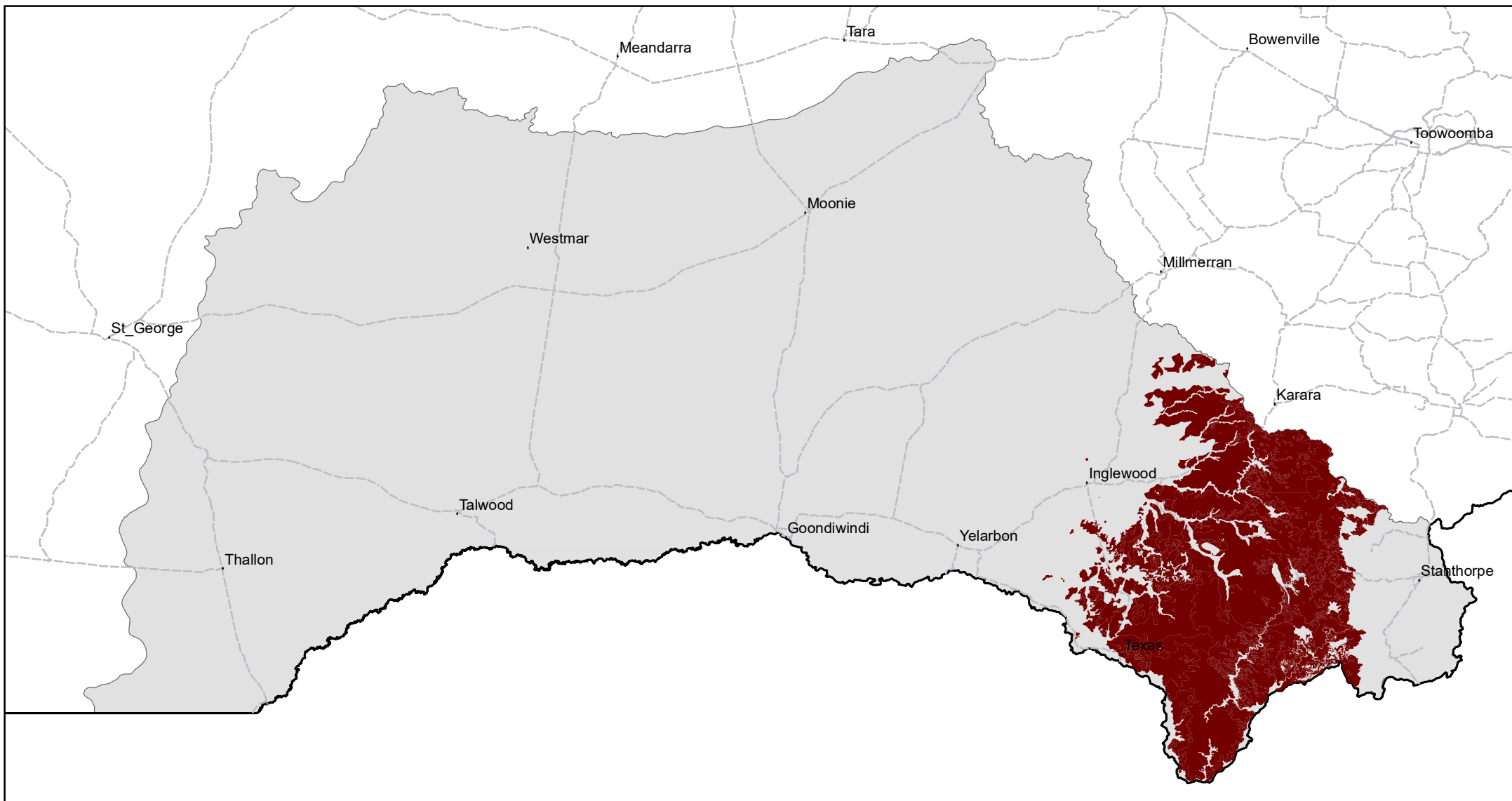
Regional Ecosystems

13.11.1, 13.11.2, 13.11.3, 13.11.3b, 13.11.4, 13.11.5, 13.11.6, 13.11.9.

Land Resource Areas; Land types; Soil associations

Soils association D9 (Shallow gravelly loams) (Lloyd 1977). Land type (Maher 1996) 18 Undulating to rolling traprock hills, 19 Low traprock hills.

BR12 Traprock hills with narrow-leaved ironbark and tumbledown gum



Area of land type in region: 12%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 65%
Median FPC: 27%
Median TBA: 11 m²/ha



Queensland
Government

Yelarbon desert



Landform

Elevated, eroded level silty plains.
Isolated to areas around Yelarbon near the State border.

Woody vegetation

Grassland with scattered shrubs and trees of bullock, tea tree, belah, mallee box and poplar box.
Much of the land type consists of eroded, bare areas with vegetation occurring on areas where topsoil remains.

Expected pasture composition

** Denotes non-native "Expected Pasture Composition" species*
Ground cover is generally very sparse.

Preferred

Pitted bluegrass, spinifex.

Intermediate

Slender chloris, windmill grass.

Non-preferred

Annuals

Common forbs

Non-preferred species include soft roly poly, streaked poverty-bush.

Suitable sown pastures

Not suitable for sown pastures.

Introduced weeds

Mother-of-millions, African boxthorn, harrisia cactus.

Soil

Eroded, silty, impermeable texture-contrast soil with thick or very thick conspicuously bleached surface or subsurface layer to 30 cm (sodosols).

Description

Surface: Hard-setting; **Surface texture:** silty clay loam; **Subsoil texture:** sandy loam to light clay.

Water availability

Very low; effective root depth 30 cm, PAWC 60 mm.

Fertility

Very low; low to very low N, P, Zn, medium K.

Salinity

High to very high salinity at 70–100 cm.

Sodicity

Strongly to very strongly sodic throughout.

pH

Strongly alkaline.

Long-term carrying capacity information (A condition)

Based on fully watered area for 1AE = 450 kg animal consuming 8kg DM/day				
Median annual rainfall 579 – 678 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	1240 - 1570	15%	12 – 16
	9 TBA 23 FPC	200 - 370	15%	53 – 97

Enterprise

Light grazing, predominately sheep.

Land use and management recommendations

- Graze very lightly.
- Do not remove any large trees or thickets of trees.

Land use limitations

- Very low plant available water.
- Low fertility.
- Soil surface impermeability.
- Highly erodible soil, susceptible to wind erosion.
- Minimal agricultural or pastoral use.

Conservation features and related management

- This land type is a natural saline discharge area.
- Some cleared areas have suffered topsoil loss and require rehabilitation.
- Much of the area presents with a scalded clay pan like appearance due to erosion mainly by wind.

Regional Ecosystems

11.5.14, 11.5.14a.

Land Resource Areas; Land types; Soil associations

Land Resource Area (Thwaites and Macnish 1991) Desert. Soils associations (Lloyd 1977, 1980) H15, Si 2 Yelarbon desert.

BR13 Yelarbon desert



Area of land type in region: 1%
Median rainfall (region): 469 – 748 mm
Average rainfall (region): 516 – 758 mm
Area of land type with FPC: 40%
Median FPC: 23%
Median TBA: 9 m²/ha



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