FORAGE REPORT: LONG-TERM CARRYING CAPACITY (LTCC)

http://www.longpaddock.qld.gov.au/FORAGE September 7, 2021 Label: spyglass Latitude/Longitude: -19.41/145.73 prototype v1.0

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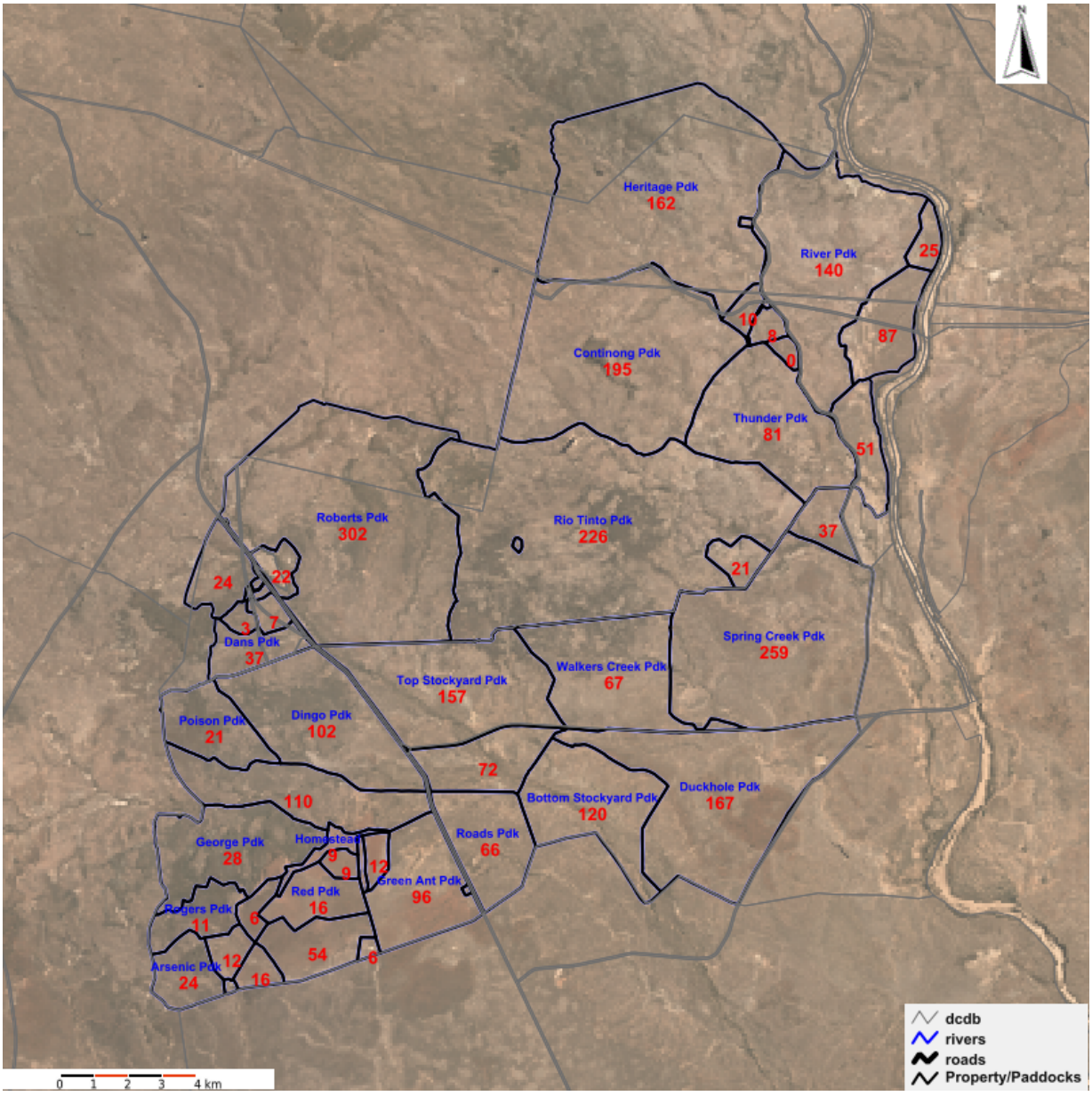
Summary of estimated LTCC (actually watered)

Land condition	LTCC (AE)	LTCC (Ha/AE)
A	2889 (2474 to 3304)	12.8 (10.9 to 14.7)
B	2167	17.1
C	1300	32.0
D	578	64.1

Estimated long-term average feral animal and kangaroo equivalents for selected property or areas: 337 AE

Location map

Estimated LTCC (AE) for selected areas under best ('A') land condition



About the report

This report presents the estimated **"long-term carrying capacity" (LTCC)** for the property of interest. LTCC in this report refers to "number of livestock that a paddock or property can support over a long period (decades) without causing land degradation".

In this report, the LTCC is measured as the total adult equivalents (AEs; 450 kg cattle consuming 8kg DM/day) that can be safely carried for a paddock or property and is also shown as hectares required per AE unit. The calculation of the LTCC is based on a number of factors, including: the long-term median annual pasture growth; the safe utilisation rate of the pastures; the distance to watering points; topography and tree density. Pasture growth is calculated from the GRASP model using parameters for grazing land management (GLM) land types, the tree density on the property and the historical climate data for the property of interest (sourced from the SILO climate database - https://www.longpaddock.qld.gov.au/silo/).

Pasture utilisation by livestock is set at a rate that is not likely to cause long-term property degradation and to allow recovery after drought. For Mulga land types, livestock consumption of "topfeed" (i.e. feeding mulga leaves) is considered in the calculation of the LTCC. Introduced pasture species such as buffel grass will show an improved pasture response output if the buffel grass option is selected at request. However, stylos, pasture irrigation and fertiliser application are not considered in the pasture growth calculation. The annual feed intake for an AE is set as 2920 kg/year.

The purpose of the report is to provide an objectively estimated LTCC for the property which can be used as a starting point for discussion and to add input for further analysis (i.e. use spreadsheet supplied along with this report to improve the LTCC estimates). Values given for the LTCC are an indication only, significant management of property grazing pressure is still required on a season to season basis (i.e. forage budgeting).

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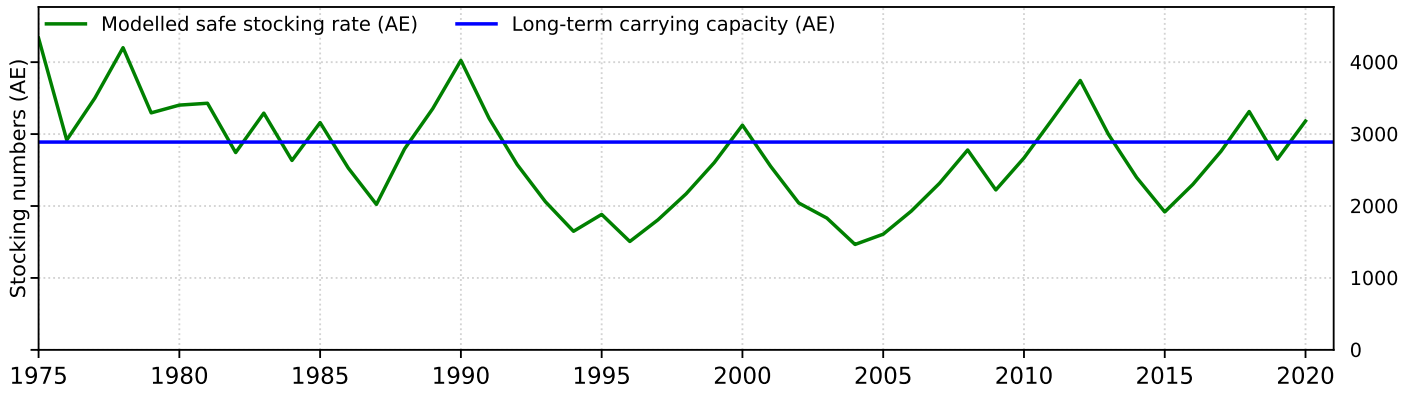
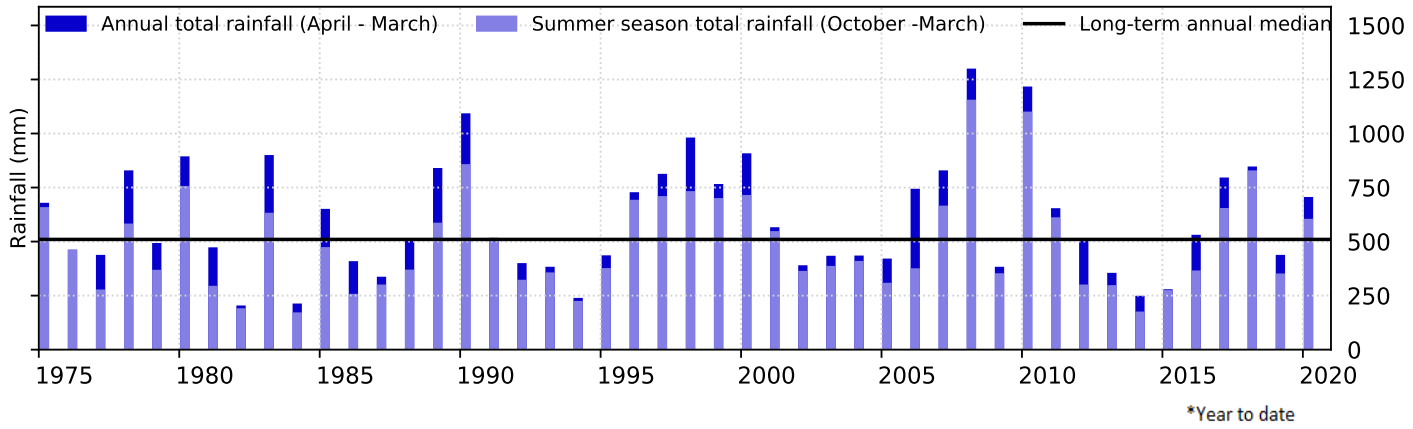
Modelled safe stocking rate under A condition



About the modelled safe stocking rate graph

The above graph shows the modelled historical annual safe stocking rates for the property. The safe stocking rate calculations are based on a number of factors including: the modelled LTCC; the safe utilisation rate defined for each land type; and a set of rules to increase/decrease the stocking rate in response to changing climate.

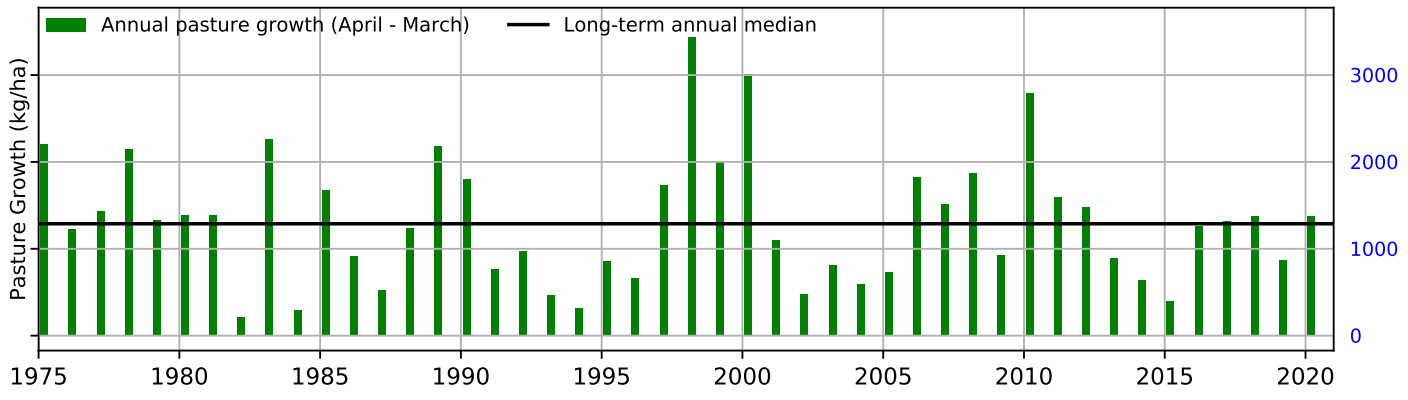
Historical annual and summer season rainfall



About the historical annual and summer season rainfall graph

The historical annual and summer season rainfall graph for the requested property is derived from the SILO database (https://www.longpaddock.qld.gov.au/silo/). Summer season rainfall is defined as rainfall during October to March. The long-term median rainfall is for a period from 1975 to the current year. The high year to year variability is a normal characteristic of Queensland rainfall.

Historical annual (April - March) pasture growth (kg/ha)



About the historical annual pasture growth graph

The historical annual pasture growth (April - March) is an area-weighted average across the property for each land type and foliage projective cover (FPC) level. The long-term median annual pasture growth is for a period from 1975 to the current year. The overall rainfall use efficiency for this property is approximately 2.2 kg DM/ha/mm rainfall.

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Long-term carrying capacity summary for paddocks/land parcels

Paddock name	Total area (ha)	Area considered not grazed (ha)	LTCC (AE) A	LTCC (AE) B	LTCC (AE) C	LTCC (AE) D	LTCC (Ha/AE) A	LTCC (Ha/AE) B	LTCC (Ha/AE) C	LTCC (Ha/AE) D
Air Strip Pdk	97.7	0.0	12	9	6	2	7.9	10.5	17.6	39.6
Arsenic Dam	13.4	0.0	0	0	0	0	-99.0	-99.0	-99.0	-99.0
Arsenic North Pdk	141.2	0.0	12	9	6	2	11.4	15.2	25.3	56.8
Arsenic Pdk	335.8	0.0	24	18	11	5	14.1	18.8	31.4	70.6
Arsenic South Pdk	118.2	0.0	16	12	7	3	7.2	9.6	16.0	36.0
Bluewater Springs Pdk	146.4	0.0	22	16	10	4	6.8	9.0	15.0	33.8
Bottom Stockyard Pdk	1061.9	0.0	120	90	54	24	8.8	11.8	19.6	44.2
Cockatoo Dam	32.9	0.0	6	4	3	1	5.7	7.5	12.6	28.3
Cockatoo Pdk	449.0	0.0	54	40	24	11	8.4	11.1	18.6	41.8
Continong Pdk	2734.3	55.9	195	146	88	39	14.0	18.7	31.2	70.1
Continong Yards	98.1	0.0	10	7	4	2	9.9	13.2	22.1	49.7
Dans Pdk	304.4	0.0	37	27	16	7	8.3	11.1	18.5	41.7
Derricks Pdk	242.4	0.0	37	28	17	7	6.5	8.6	14.4	32.4
Dingo Pdk	1366.3	0.0	102	77	46	20	13.4	17.8	29.7	66.8
Duckhole Pdk	2265.6	0.0	167	125	75	33	13.6	18.1	30.2	67.9
George Pdk	1019.9	0.0	28	21	13	6	36.0	48.0	80.0	180.1
Green Ant Dam	5.7	0.0	0	0	0	0	-99.0	-99.0	-99.0	-99.0
Green Ant Pdk	834.6	0.0	96	72	43	19	8.7	11.5	19.2	43.3
Hammers Dam	9.9	0.0	0	0	0	0	-99.0	-99.0	-99.0	-99.0
Heritage Pdk	3353.2	0.0	162	121	73	32	20.7	27.6	46.1	103.7
Homestead	109.1	0.0	9	7	4	2	11.6	15.5	25.9	58.2
Horts Dam Pdk	171.4	0.0	21	16	9	4	8.2	10.9	18.2	41.0
Howards Pdk	360.2	0.0	51	38	23	10	7.0	9.4	15.6	35.1
Junction Pdk	559.6	0.0	72	54	32	14	7.8	10.4	17.3	38.8
Little River North Pdk	133.2	0.0	25	19	11	5	5.4	7.2	11.9	26.8
Little River South Pdk	528.3	0.0	87	65	39	17	6.1	8.1	13.5	30.3
Long Pdk	32.7	0.0	5	3	2	1	7.2	9.6	16.1	36.1
Middle Yards	89.4	0.0	8	6	4	2	10.6	14.1	23.5	52.9
North Homestead Pdk	9.8	0.0	0	0	0	0	-99.0	-99.0	-99.0	-99.0
Poison Pdk	531.2	0.0	21	16	9	4	25.2	33.6	56.0	126.1
Red Pdk	363.1	0.0	16	12	7	3	22.2	29.6	49.3	111.0
Rio Tinto Dam	8.5	0.0	0	0	0	0	-99.0	-99.0	-99.0	-99.0
Rio Tinto Pdk	4614.2	0.0	226	169	102	45	20.4	27.3	45.4	102.2
River Pdk	2098.1	0.0	140	105	63	28	14.9	19.9	33.2	74.7
Roadhouse	0.9	0.0	0	0	0	0	-99.0	-99.0	-99.0	-99.0
Roadhouse Pdk	351.8	0.0	24	18	11	5	14.6	19.5	32.5	73.1
Roads Pdk	696.5	0.0	66	50	30	13	10.6	14.1	23.5	52.8
Roberts Pdk	3597.7	11.4	302	227	136	60	11.9	15.9	26.5	59.6
Rogers Pdk	326.6	0.0	11	8	5	2	30.1	40.2	67.0	150.7
Snake Creek Pdk	950.6	0.0	110	82	49	22	8.6	11.5	19.2	43.2
Soda Springs Pdk	66.5	0.0	3	2	1	1	25.4	33.9	56.5	127.1
South Homestead Pdk	77.9	0.0	9	7	4	2	8.6	11.4	19.0	42.8
South Yards	54.9	54.9	0	0	0	0	-99.0	-99.0	-99.0	-99.0
Spring Creek Pdk	2628.6	0.0	259	194	116	52	10.2	13.6	22.6	50.8
Spring Pdk	97.6	0.0	7	5	3	1	14.2	18.9	31.6	71.1
Thunder Pdk	1306.6	215.4	81	60	36	16	16.2	21.6	36.0	81.0
Top Stockyard Pdk	1560.0	0.0	157	118	71	31	9.9	13.2	22.0	49.5
Trough Pdk	112.4	0.0	6	4	2	1	20.3	27.1	45.2	101.7
Walkers Creek Pdk	1268.1	0.0	67	50	30	13	18.9	25.2	42.1	94.7
Yards	16.7	0.0	1	1	1	0	11.6	15.5	25.8	58.0
Yards Pdk	15.6	0.0	0	0	0	0	-99.0	-99.0	-99.0	-99.0
Total/mean	37369	338	2889	2167	1300	578	12.8	17.1	28.5	64.1

** User specified as predominantly buffel grass or pasture improved >50% for the paddock.*

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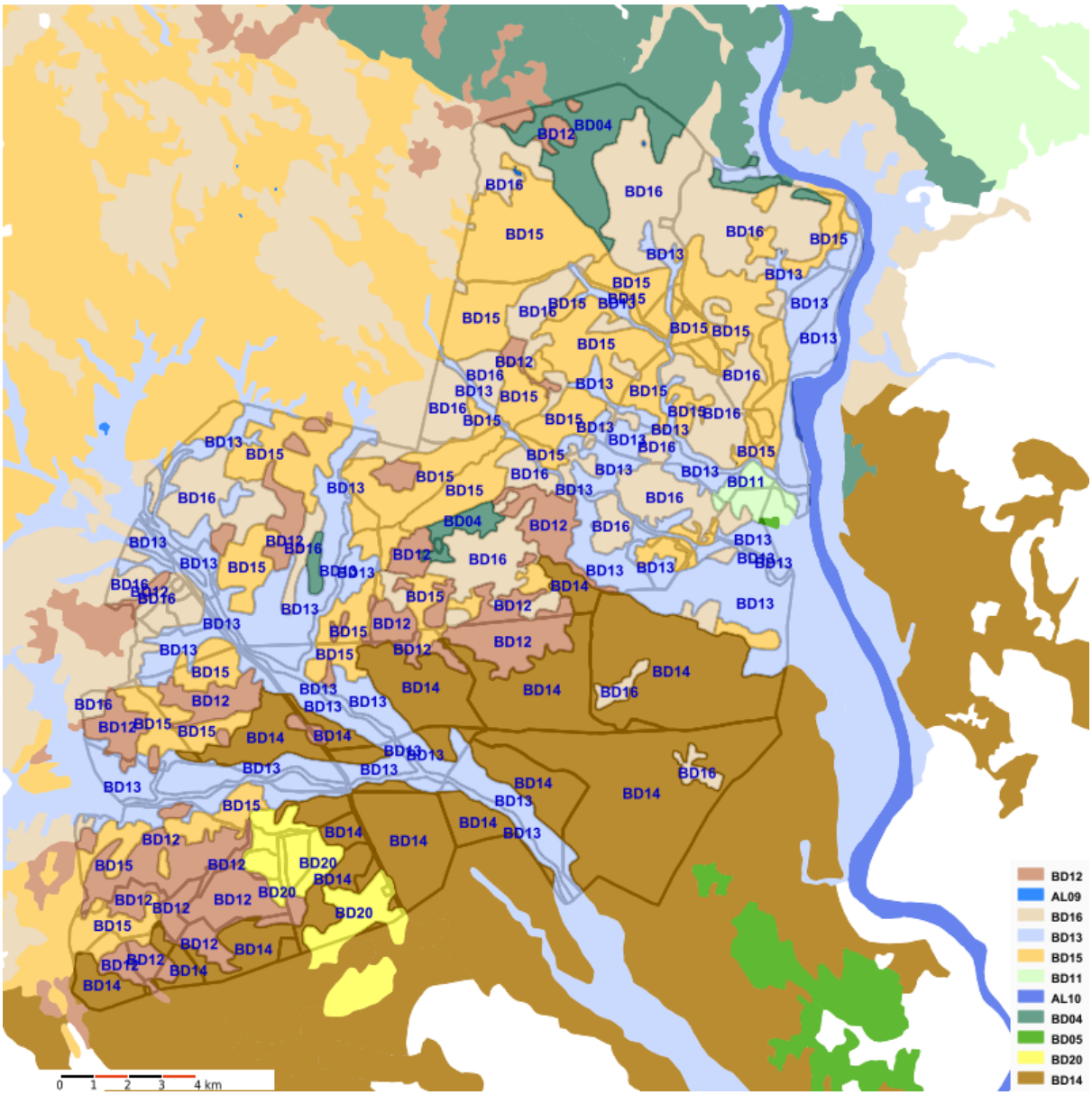
Property land types



Summary of the land types and corresponding long-term carrying capacity

Land type code and name	Land type area (ha)	Percent area FPC<15	LTCC (AE) A	B	C	D	LTCC (Ha/AE) A	Pasture growth (kg/ha/year)
BD11 - Goldfields country - red soils	199.8	94.6	34	26	15	7	5.9	2060
BD13 - Loamy alluvials	7410.6	33.1	1111	833	500	222	6.7	1617
BD05 - Box country BD	1.6	44.4	0	0	0	0	8.7	1339
BD20 - Yellowjacket with other eucalypts	791.4	61.9	84	63	38	17	9.4	1572
BD14 - Narrow-leaved ironbark on deeper soils	8524.0	32.6	710	532	319	142	12.0	1135
BD15 - Narrow-leaved ironbark on shallower soil	8404.3	53.5	588	441	264	118	14.3	1195
AL10 - Wetland	6.9	7.8	0	0	0	0	21.7	921
BD16 - Ranges	6591.4	65.9	253	190	114	51	26.0	1272
BD04 - Box and napunyah	1154.4	16.0	40	30	18	8	28.9	835
BD12 - Lancewood - bendee - rosewood BD	4280.4	21.9	69	52	31	14	61.9	557
Water	5	N/A	0	0	0	0	0	0
Total/mean	37369	44	2889	2167	1300	578	12.8	1207

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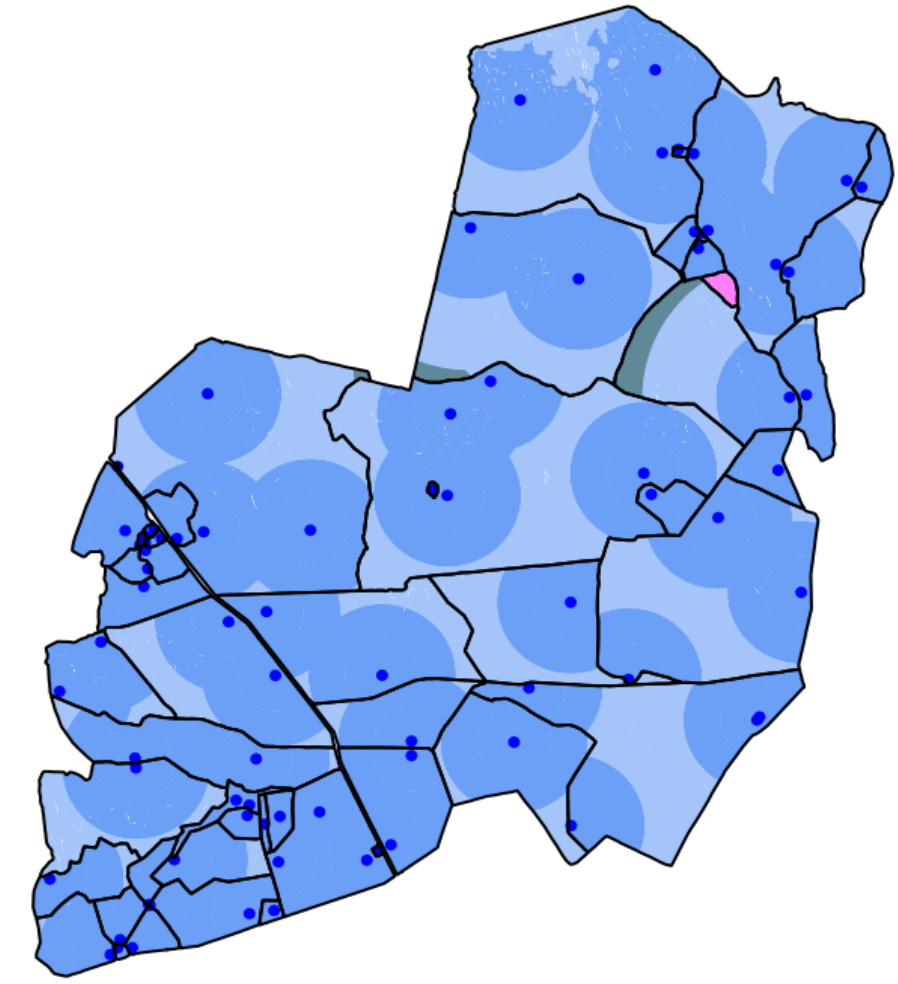
Distance to watering points



Summary of distance to watering points

Cattle are considered to mainly graze within 3 km of watering points and areas 5 km away from watering points are considered to be rarely grazed. For this property there are **338 ha** that are either more than 5 km away from the watering points or having no watering points. In addition, cattle use more energy to graze on steep slopes than on flat areas. A digital elevation model (DEM) is used to discount grazing capacity on steep slopes. Pink areas on the map indicate no watering point in these paddocks. If this is not the case, watering points need to be added for these areas and the report needs to be re-requested.

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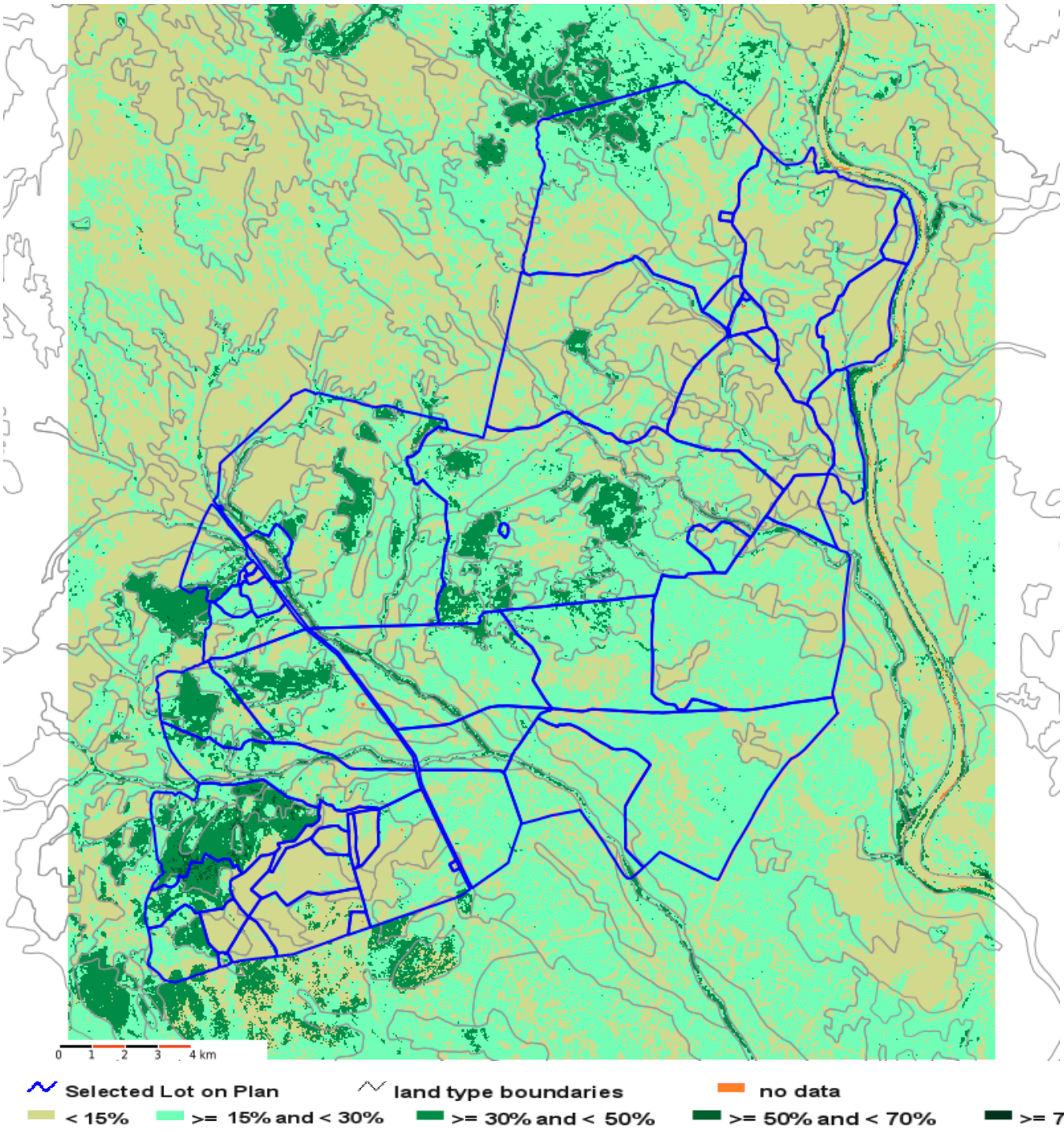
Estimated foliage projective cover (FPC)



About the foliage projective cover (FPC) map

The map presents estimated FPC information obtained from satellite data (2014) for the selected paddocks/land parcels (for more information see FORAGE FPC report). The map shows both the different classes of FPC and the land type information for the area selected. Areas with greater than 15 percent FPC are classed as woody vegetation cover, whereas areas with less than 15 percent FPC are classed as non-woody vegetation cover. Users may be more familiar with tree density being expressed as tree basal area (TBA). As a guide, for mature tree communities, FPC thresholds of 15, 30 and 70 percent equate to tree basal area of approximately 6, 12 and 32 m^2/ha respectively.

Disclaimer