

NSW Seasonal Conditions Report - April 2013

Highlights

- Wetter conditions likely for northern & eastern NSW, normal to drier conditions in the south west.
- Cooler daytime temperatures and warmer night time temperatures likely for the north and north east. Warmer daytime temperatures likely in the south west.
- Relative March rainfall above average for central, north, & north west NSW, below average in the south east.
- Relative March pasture growth generally above average along the tablelands, slopes and coast, and average to above average over the rest of NSW.
- Conditions have continued to deteriorate in parts of the Lachlan, Darling, Central West & Western LHPAs. It is important that farmers have a clear plan & an understanding of their options. Considerable resources are available to assist in management. Details at <http://www.dpi.nsw.gov.au/agriculture/emergency/drought/managing>

Summary

- Wetter conditions are likely for northern and eastern NSW between April and June with the chance of exceeding median rainfall being between 60-80%. Probabilities are 45-55% for south western and far western NSW, indicating near normal to slightly drier conditions.
- Cooler than normal daytime temperatures are likely over the three month period to the end of June for northern and north eastern NSW. For south western NSW, warmer than normal temperatures are likely. Near normal temperatures are likely in a band running from the far north west of NSW to the far south east.
- Minimum temperatures over the next three months are likely to be warmer than normal in the north to north east, and cooler than normal in the south west.
- A cold front early in the month resulted in widespread heavy rain across northern and eastern NSW, causing minor to moderate flooding. Thunderstorm activity resulted in follow up falls of rain across central NSW mid to late in the month, and also in the south east and northern NSW.
- During March, rainfall was limited over much of the Western and parts of the Riverina and South East LHPA districts, and around Bourke and Brewarrina.
- Relative to historical records, rainfall for March was above average to extremely high across much of the far north west, north west and central NSW and the mid north coast. The rest of the State received average relative rainfall, with the exception of the far south coast and Monaro, which was below average to extremely low in relative rainfall.
- For the last three months, relative rainfall has been above average to extremely high for the north east of the State, much of the tablelands and the central to north coast. Areas of below average relative rainfall occurred between Enngonia, Bourke, Brewarrina, Nymagee, Nyngan, Tottenham, and Lake Cargelligo, around Young, in areas of the Riverina and along the Murray in the far south west. Relative rainfall across the rest of the State was average.
- Maximum temperatures over March were slightly cooler in the north east and far north west, and slightly warmer in the south west of the State. Minimum temperatures were slightly lower than normal in the central tablelands and far north west, and slightly warmer than normal in the far north east and far south west.
- Pasture growth models indicate that for March, relative growth was patchy, but generally above average to extremely high across most of the State. The tablelands and upper slopes had the highest relative growth, and showed a similar pattern for the three months to March. Pasture growth data was not available for large areas of the Western and part of the Riverina LHPA districts.
- Modelled relative standing dry matter levels across central NSW ranged from average to well below average, with above average or better growth across the tablelands, coast and slopes, and in far north western NSW.
- Modelled topsoil moisture was very low in the far west, low across the central areas and moderate to high along the coast. Subsoil moisture increased along the central to north coast and the northern tablelands and remained static over the rest of NSW.

Seasonal outlook

Seasonal outlook information is sourced from Bureau of Meteorology forecasts.

Rainfall

- Wetter conditions are possible for northern and eastern NSW between April and June.
- Between April and June, the chance of exceeding median rainfall for northern and eastern NSW is between 60-80%. Probabilities are 45-55% for south western and far western NSW.
- The outlook confidence (skill) for this forecast is moderately consistent, being over 50% for most of the State. Confidence levels are higher for the central to north coast, north western NSW and the far west. Outlook confidence tends to be low in Autumn.
- These percentages mean that for northern and eastern NSW, for every ten years with similar ocean patterns to those currently observed, about six to eight years would be expected to be wetter than average, and about two to three years would be drier.

Temperature

- Cooler than normal daytime temperatures are likely over the three month period to the end of June for northern and north eastern NSW.
- For south and south western NSW, warmer than normal temperatures are likely.
- Near normal temperatures are likely in a band running from the far north west of NSW to the far south east.
- The chance of exceeding the median maximum temperature is between 30-45% in the north and north east of NSW, and between 55-70% in the south and south west.
- The outlook confidence (skill) for this forecast is moderately consistent for northern and north eastern NSW, and weakly consistent (low), being 50% or less for the remainder of the State.
- These percentages mean that for north and north eastern NSW, for every ten years about six to seven years will have warmer than average daytime temperatures, and three to four years will be cooler.
- Minimum temperatures over the next three months are likely to be warmer than normal

in the north to north east, and cooler than normal in the south west of NSW.

- Minimum temperatures are likely to be near normal in a band running from the far north west of NSW to the far south east.
- The probability of exceeding the median minimum temperature is between 25-40% in the south west of the State, 40-60% in the central third of the State and 60-80% in the north to north east of the State.
- Outlook confidence (skill) for this forecast is moderate, being 55-75% (moderately to highly consistent) for most of the State and being 45-55% (low) in the south west.

Rainfall

Relative rainfall

March

- Relative to historical records, rainfall for March was above average to extremely high across most of the central tablelands, north west and mid north coast. This included areas of the Darling, North West, Central North, Central West, Lachlan, Tablelands and Mid Coast LHPA districts.
- The remainder of the State received average relative rainfall, except for areas of the far south coast and Monaro, which had below average to extremely low relative rainfall. This covered much of the South East LHPA district.
- Below average relative rainfall also occurred in scattered areas near the Macquarie Marshes, Lockhart, Young, Goulburn, Nowra, Mittagong and Coffs Harbour.

January to March

- Over the period from January to March, relative rainfall was above average to extremely high across the north east corner of the State. This included the whole of the North Coast and Mid Coast LHPA districts, and extended to areas of the North West, New England, Central North, Tablelands and Cumberland LHPA districts.
- The majority of the State received average relative rainfall over the period, including most of the Western, Darling, Central West, North West, Lachlan, Riverina, Hume, Tablelands and South East LHPA districts.
- Areas of below average to well below average relative rainfall extended through the eastern side of the Darling LHPA district,

and the western side of the North West, Central West and Lachlan LHPA districts.

- This area extended from Enngonia through to Bourke, south of Brewarrina, Byrock, Carinda, Quambone, Hermidale, Nyngan, Nymagee, Warren, Tottenham, Tullamore, west of Condobolin and Lake Cargelligo. A smaller area extended from Goodooga to Lightning Ridge. Other areas included a zone between Young, Harden and Jugiong, and along the Murray River from Wentworth to Mathoura and from Coleambally to Corowa.

October to March

- Over the six months to March, relative rainfall was below average to extremely low in a belt through the centre of the State from the Queensland border (extending from Wanaaring to Mungindi) and running south to Lake Cargelligo, Temora and Cootamundra. Other areas of below average to extremely low relative rainfall extended to the north of Broken Hill, and along the Murray from Wentworth to Corowa and extending north to Oxley, Hay, Coleambally and Narrandera.
- This area included most of the Darling, Central West and Lachlan LHPA districts, the western half of North West, the north western corner of Tablelands, the southern half of Riverina and the south of Western LHPA districts.
- Relative rainfall was above average to extremely high in the north eastern corner of the State, extending across North Coast, most of Mid Coast and the northern and eastern areas of New England LHPA districts.
- The remainder of the State received average relative rainfall, including Central North, Cumberland, South East, and Hume LHPA districts, most of the Western and Tablelands LHPA districts, the eastern half of North West, the western half of New England and the northern half of Riverina LHPA districts.

July to March

- Over the 9 month period from July to March, relative rainfall across the State was generally below average or worse, with the exception of the north west slopes, northern tablelands and coastal areas. The north east received average to above average relative rainfall.

- Very much below average rainfall occurred in the far south western corner of the State, and an area between Euabalong and Nymagee.

Total rainfall

March

- During March, rainfall was limited to falls in the range of 1-25 mm over much of the Western and Riverina LHPA districts, and the west of Lachlan, Central West and North West LHPA districts. Small areas around Bourke, between Byrock and Carinda, between Temora and Harden, west of Wagga Wagga and in the far south east also received rainfall of 25mm or below.
- Most of NSW received rainfall in the range of 25-100mm in the first four days of the month, as a cold front and surface trough crossed the State. Rain also fell as a result of thunderstorm activity late in the month.
- Extremely heavy falls occurred on the far north coast and mid north coast. Rainfall in ranged from 200-600 mm in some areas. Minor to moderate flooding occurred in some areas.
- Severe thunderstorms late in the month in the Riverina generated a tornado that caused damage to Barooga and Mulwala.

October to March

- Rainfall across the State during the October to June period ranged from 10mm to more than 1,200 mm.
- The lowest rainfall over the period (10-50 mm) occurred across the far west of Western LHPA district, the central areas of Darling LHPA district and the far west of Riverina LHPA district.
- The west of the State generally received 25-100 mm, the central areas 50-300 mm and the upper slopes, tablelands and south coast 100-400 mm.
- Parts of the North West, and Central North LHPA districts received 300-400 mm.
- Sections of New England and Cumberland LHPA districts received 300-800 mm, Mid-Coast received 300-1,200 mm and North Coast LHPA district 600-1,200 mm.

Temperature anomalies

- Maximum temperatures across the State in March ranged from 1 to 2 degrees above normal in the far south west, to -1 to -2 degrees below normal in the far north west

and in the north east (extending across sections of the North West, Central North and New England LHPA districts). Maximum temperatures across the remainder of the State were near normal.

- Minimum temperatures during the month were 1 to 2 degrees above average in the far south west of the State, parts of the Riverina and on the far north coast. They were slightly (1 degree) below average in the far north west, the central tablelands and far south east. The remainder of the State had near normal minimum temperatures.

Soil moisture

Relative soil moisture

Topsoil

- Modelled topsoil moisture improved slightly across the State during March. However, it remains very low across the far west and far south west of the State, and around the Bourke area.
- Modelled topsoil moisture remains low across the central third of the State, although there has been a slight improvement from last month.
- Modelled topsoil moisture was generally average across the eastern third of the State, with some high areas along the north coast (North Coast and Mid Coast LHPA districts) and associated eastern fall country (in the New England LHPA district).
- The extensive high areas seen in last month's data along the central, mid north and far north coast appear to have drained into the subsoil.

Subsoil

- The heavy rainfall across the north east and coastal areas of the State in February and March increased modelled subsoil moisture levels in these areas from moderate-high to high-very high. In some areas of the Mid Coast LHPA district, the profile was completely saturated.
- Other increases in modelled subsoil moisture occurred across parts of the North West, New England, Central North, Tablelands and South East LHPA districts
- Across the rest of the State, modelled subsoil moisture was mostly static.

Pasture growth and biomass

Modelled pasture growth

- Modelled pasture growth across NSW in March was low in the far west of Western LHPA and the southern areas of Riverina LHPA, being less than 10 kg/ha of dry matter.
- Extremely low modelled growth occurred in areas of the Cumberland, Mid Coast, North Coast and New England LHPA districts that received very heavy rainfall over the last two months.
- A strip of low pasture growth of 20-50 kg/ha of dry matter occurred through the centre of the State from the western half of North West LHPA district, through Central West and Lachlan LHPA districts.
- The tablelands, upper slopes and south coast had modelled growth rates that generally ranged from 200-500 kg/ha of dry matter.
- The remainder of NSW generally showed growth rates of 50-200 kg/ha of dry matter.

Modelled biomass

- Modelled total standing dry matter levels across much of the State were less than 1000 kg/ha of dry matter during March.
- A band through the central areas of the State, and including sections of Darling, North West, Central West, Riverina and Hume LHPA districts had modelled dry matter levels of less than 500 kg/ha. Much of the area had levels of less than 250 kg/ha.
- Equally low levels occurred in the far west of Western LHPA district, in South East LHPA district along the far south coast, and in Mid Coast LHPA district.

Relative pasture growth

March

- Relative pasture growth during March was average or above across most of the State. Pasture growth data was not available for large areas of the Western LHPA district and the west of the Riverina LHPA district.
- Above average to extremely high relative growth occurred across most the coastal and tablelands LHPA districts, as well as Central North and the eastern half of the North West LHPA districts.
- Patches missing data or average relative growth are indicated in those areas of the

North Coast, Mid Coast and New England LHPA areas that received excessive rainfall over the last two months, probably due to waterlogging and surface water flow.

- Small patches of below average to extremely low relative growth occurred around Bourke, Harden and between Mathoura, Wakool and Barham.

January to March

- Over the three months to March, relative potential pasture growth has been generally average to extremely high across the State.
- Generally, the eastern third of the State has had above average to extremely high relative pasture growth, including the eastern half of North West LHPA district, and most of Central North, New England, North Coast, Mid Coast, Cumberland and Tablelands LHPA districts. Relative pasture growth in South East LHPA district has been mixed, but generally average or above.
- The remainder of the State has had generally average relative pasture growth. Exceptions are an area from Enngonia to Bourke and Louth, Broken Hill, along the Murray River from Wentworth to Barham and Moulamein, Harden and Finley to Wagga Wagga. These areas had generally well below average growth.

October to March

- Most of the State had below average to extremely low relative pasture growth over the six months to March.
- The worst areas were in the far south west of Western LHPA district, the eastern two thirds of Darling LHPA district and the Riverina LHPA district.

Relative biomass

- Modelled relative standing dry matter levels across central NSW ranged from average to well below average, with above average or better growth across the tablelands, coast and slopes, and in far north western NSW.
- Areas of particularly low relative standing dry matter occurred in the south of Riverina LHPA district and in the central areas of Central West LHPA district, the north of Lachlan LHPA district and around Harden, the west of North West LHPA district, in Darling LHPA district between Enngonia, Goodooga and Bourke and in Western LHPA district around Wentworth.
- The remainder of the State had average relative standing dry matter levels.

- Apart from the far north coast, most of the eastern area of the State (including the south and central coast, tablelands and upper slopes) are showing higher than normal greenness.

Crop production

Updated crop production information was not available at the time of production of this report.

Water storage and irrigation allocations

Storage levels

Storage levels are given as at 16th April 2013.

Storage	Current Volume (GL)	Effective Capacity (%)	Monthly Change (%)
Toonumbar	11	102	0
Glenbawn	749	100	0
Glennies	280	99	0
Lostock	20	100	-1
Brogo	9	100	-
Cochrane	0	-	-
Dartmouth	3576	93	-1
Hume	1428	47	-7
Blowering	981	59	-2
Burrinjuck	389	38	0
Brewster	-	-	-
Carcoar	25	68	-6
Cargelligo	26	66	2
Wyangala	925	76	-3
Glenlyon	229	-	-
Pindari	196	63	1
Copeton	1014	74	-1
Chaffey	50	81	-3
Keepit	189	44	2
Split Rock	351	88	-1
Burrendong	518	42	0
Oberon	39	86	-2
Windamere	207	56	-1
Lake Cawndilla	401	58	9
Lake Menindee	307	43	12
Lake Pamamaroo	327	119	53
Menindee	-	-	-
Total Menindee	-	-	-
Wetherell	169	88	37
Total	12416		
Average		75	

- Levels in water storages remain generally moderate, with the average effective capacity being 75%.

- Storage levels have remained stable on average during the last week, with the major reductions/outflows being generally low.
- The greatest monthly change in storage capacity was the increase in Lakes Cawndilla, Menindee, Pamamaroo and Wetherell and the decrease in the Hume and Carcoar dams.

Irrigation allocations

- Most general security allocations are unchanged from January. Allocations are at 100% or more, except for the Lachlan, Belubula, Macquarie-Cudgegong, Lower Namoi, Peel and Bega-Brogo river valleys where they are low to moderate.
- The allocation for the Macquarie-Cudgegong valley increased from 58-62%, the Lower Namoi from 32-47% and the Bega-Brogo from 52-70% since the last report.

River valley	Allocation	Licence category
NSW	100%	General security A Class
Border Rivers	100%	General security B Class
	100%	High security
Richmond	100%	General security
	100%	High security
Gwydir	150%	General security
	100%	High security
Hunter	100%	General security
	100%	High security
Paterson	100%	General security
	100%	High security
Lachlan*	0%	General security
	100%	High security
Belubula*	39%	General security
	100%	High security
Lower Darling	100%	General security
	100%	High security
Macquarie and Cudgegong*	62%	General security
	100%	High security
Murray	100%	General security
	100%	High security
Murrumbidgee*	100%	General security
	100%	High security
Lower Namoi*	47%	General security
	100%	High security
Upper Namoi	100%	General security
	100%	High security
Peel	83%	General security
	100%	High security
Bega Brogo	70%	General security
	100%	High security

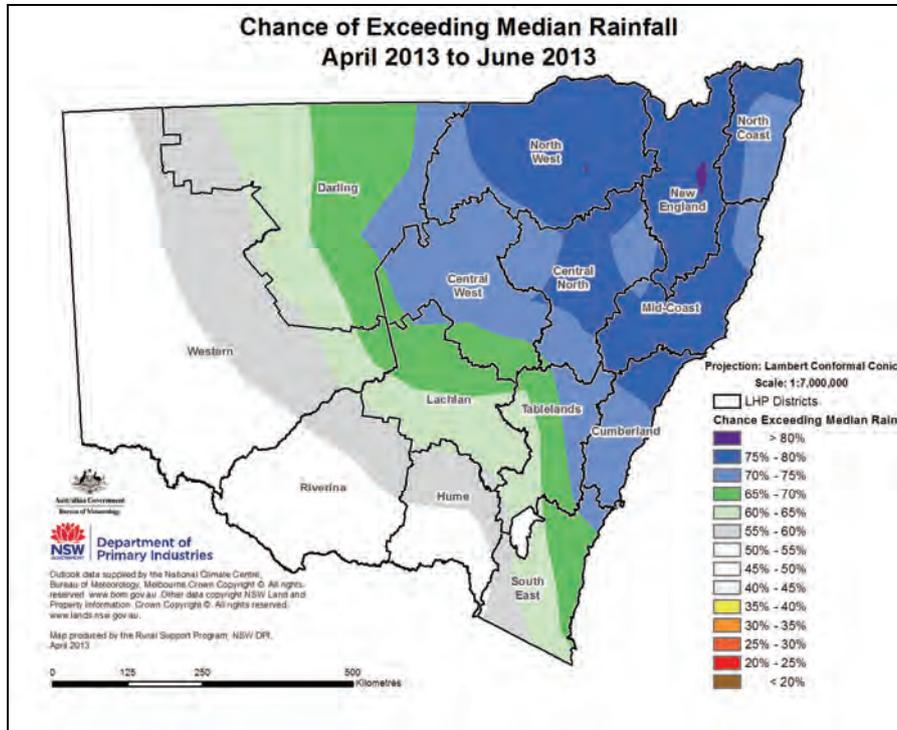
* Carry over water may be available

Appendix

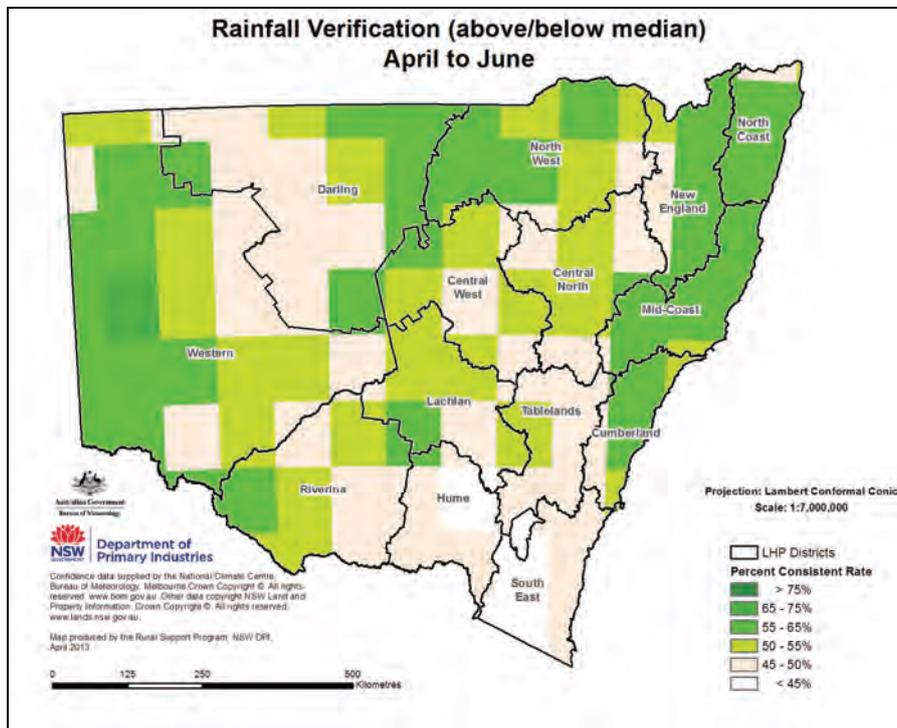
Maps and data used in the production of this report.

Seasonal outlook

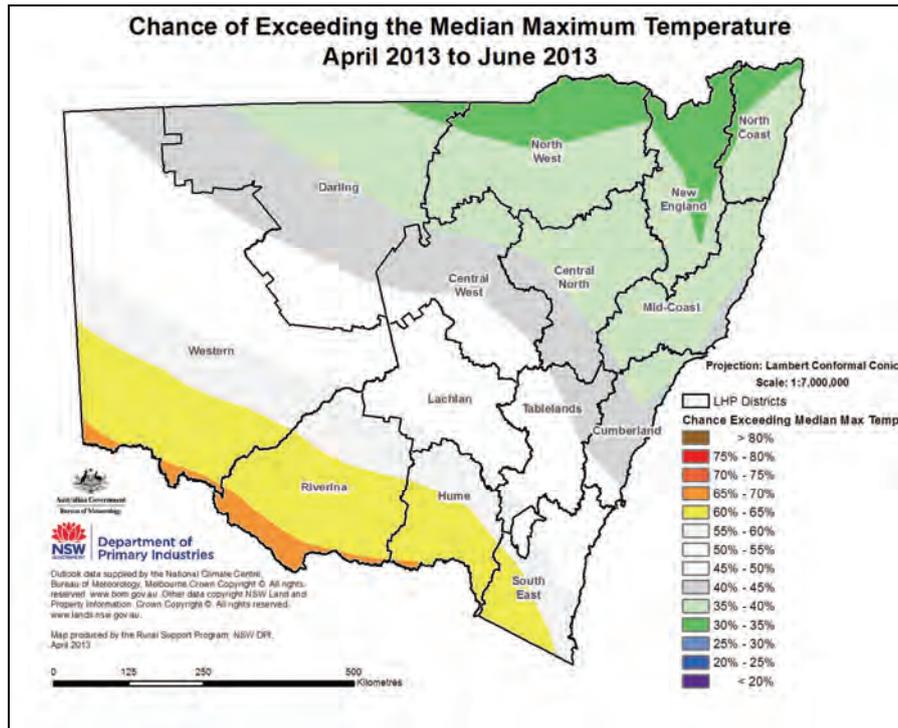
Quarterly rainfall outlook



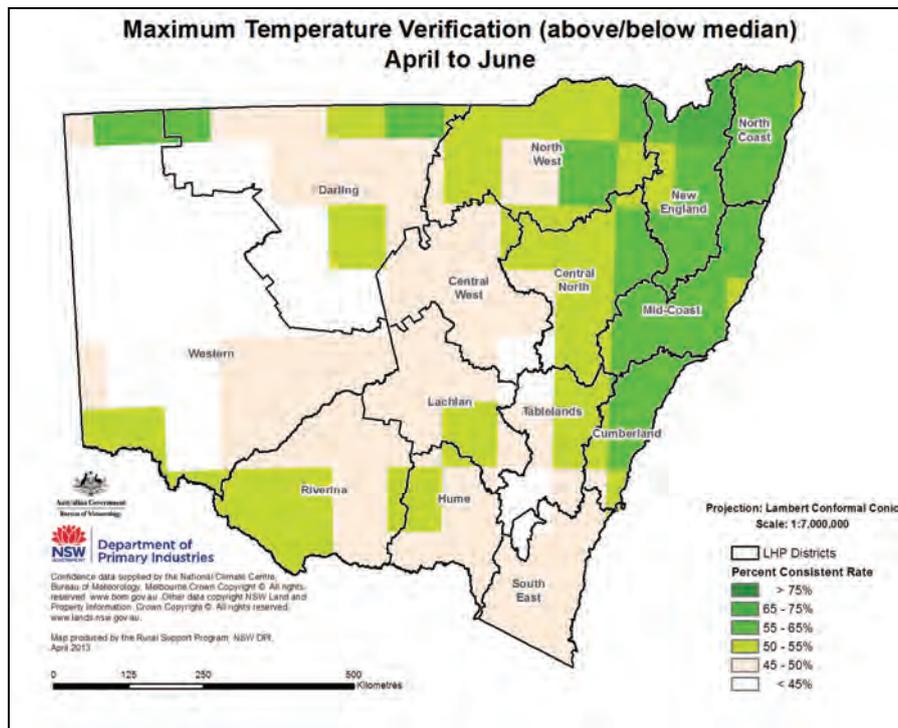
Quarterly rainfall outlook – confidence/skill



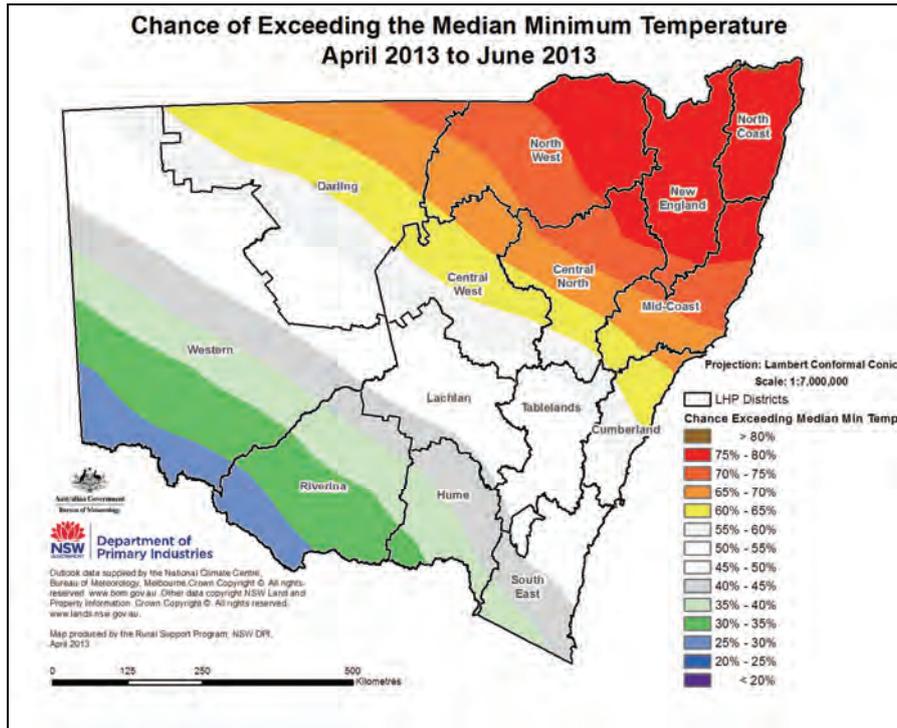
Quarterly maximum temperature outlook



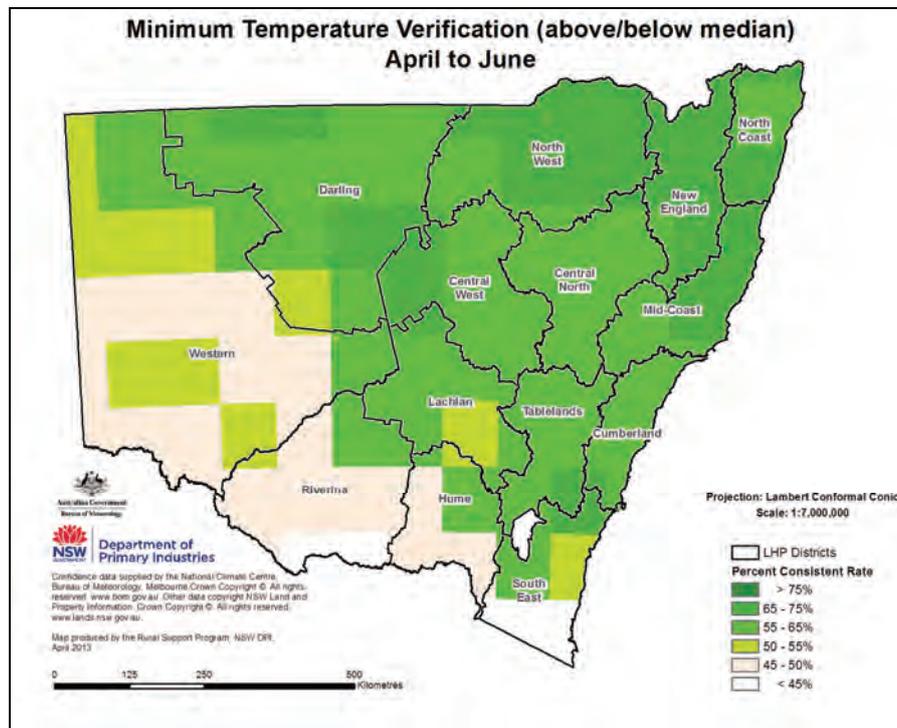
Quarterly maximum temperature outlook – confidence/skill



Quarterly minimum temperature outlook

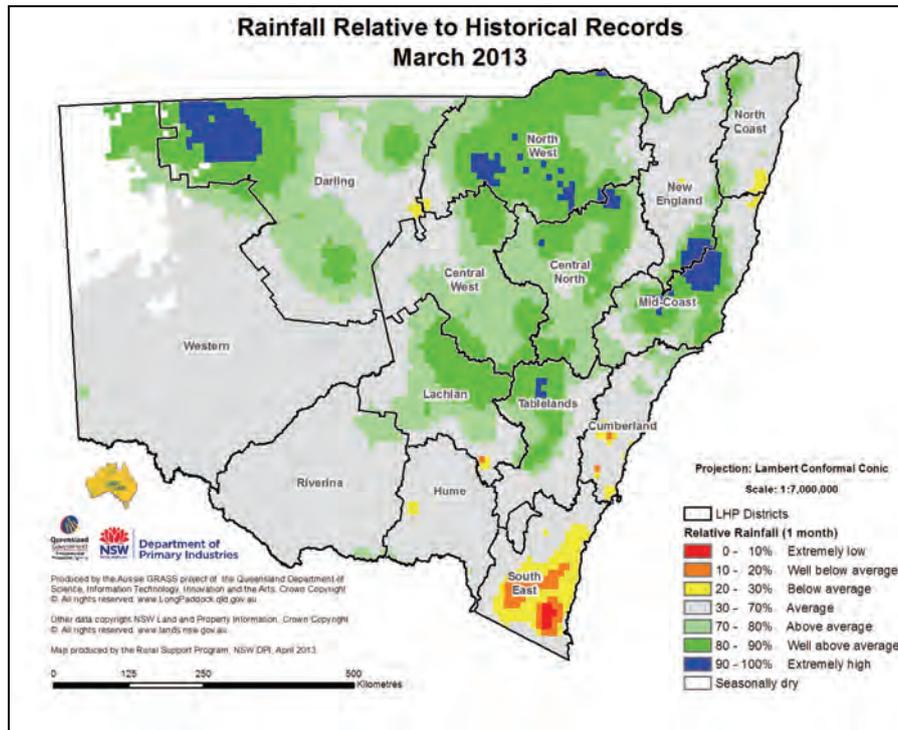


Quarterly minimum temperature outlook – confidence/skill

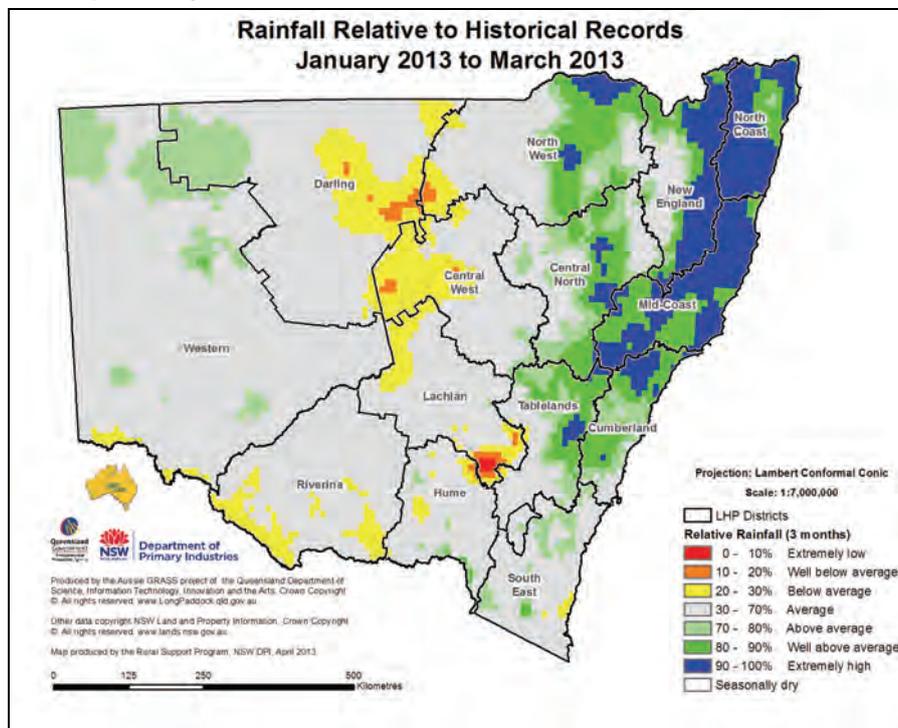


Rainfall

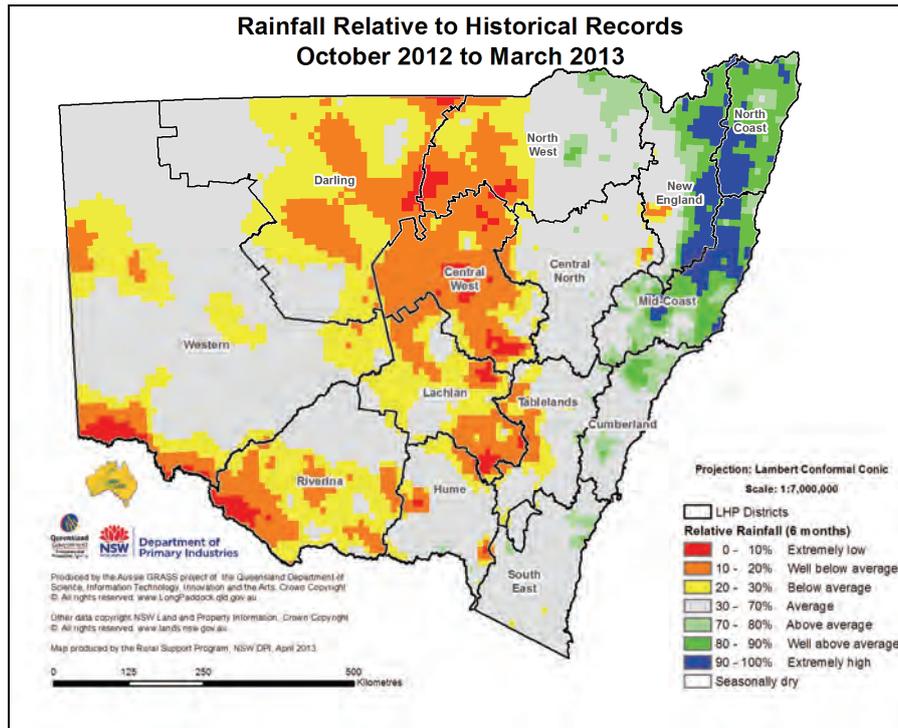
Relative rainfall – monthly



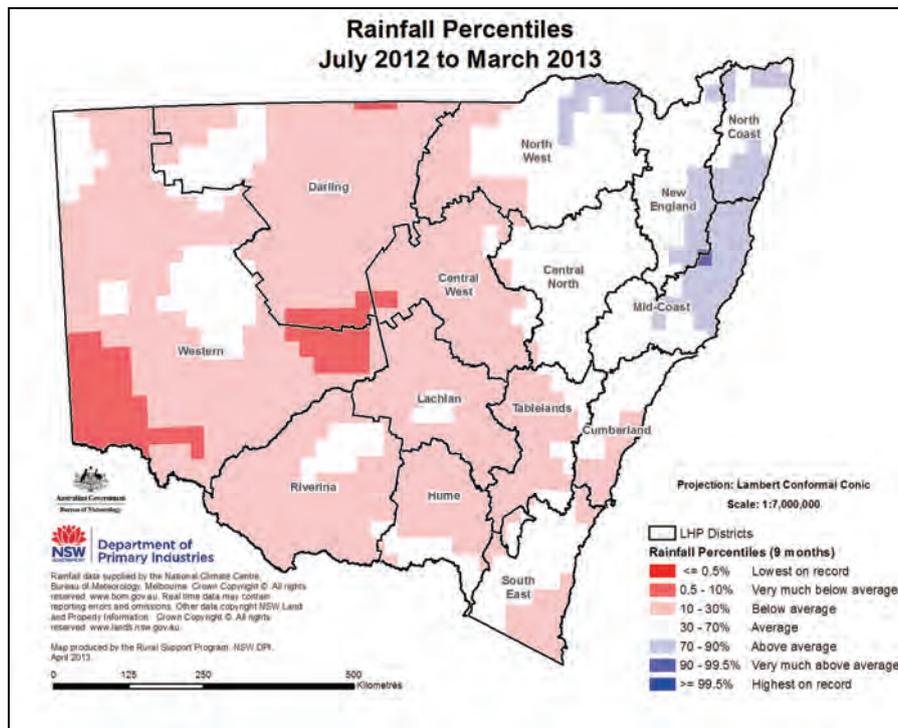
Relative rainfall – quarterly



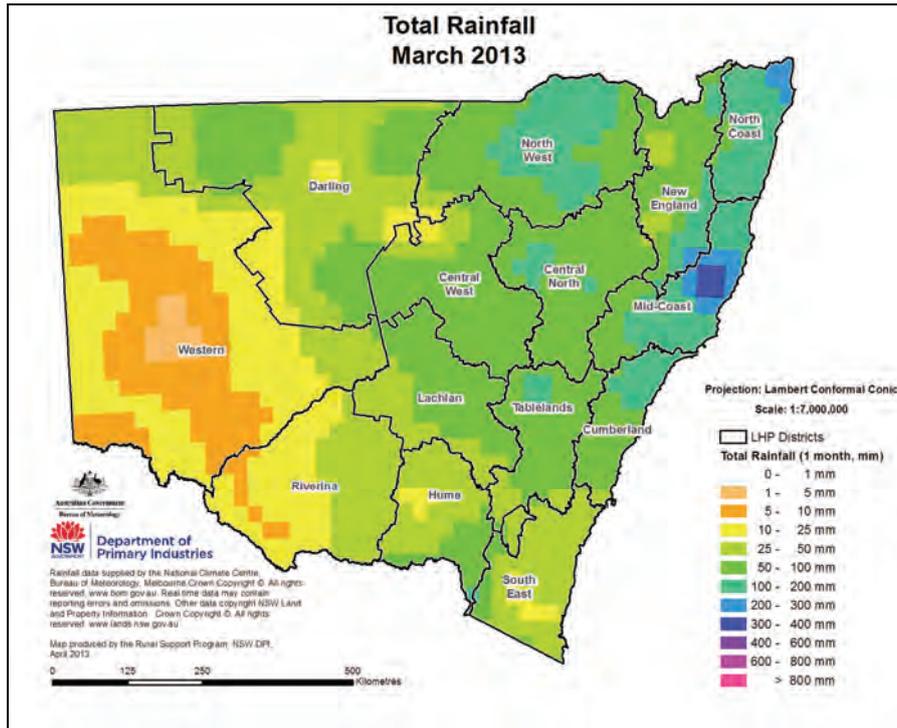
Relative rainfall – half yearly



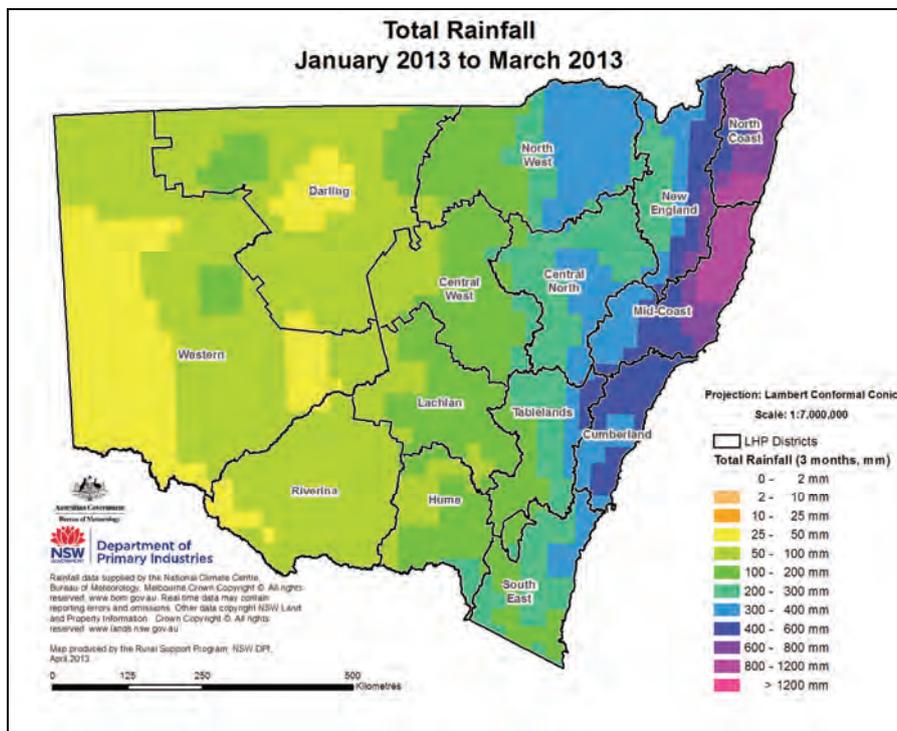
Relative rainfall – nine monthly



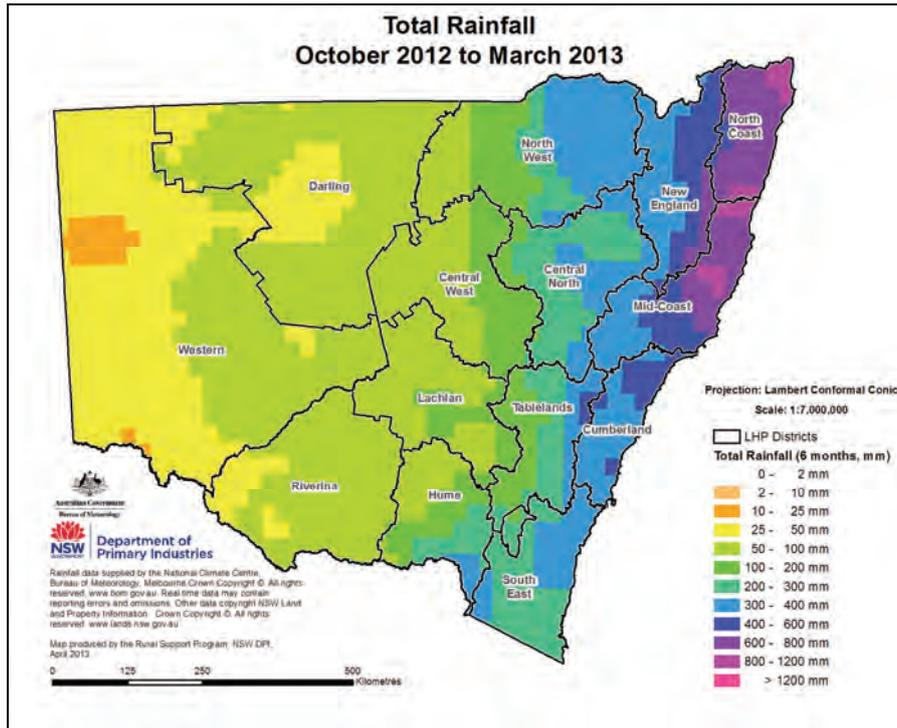
Total rainfall – monthly



Total rainfall – quarterly

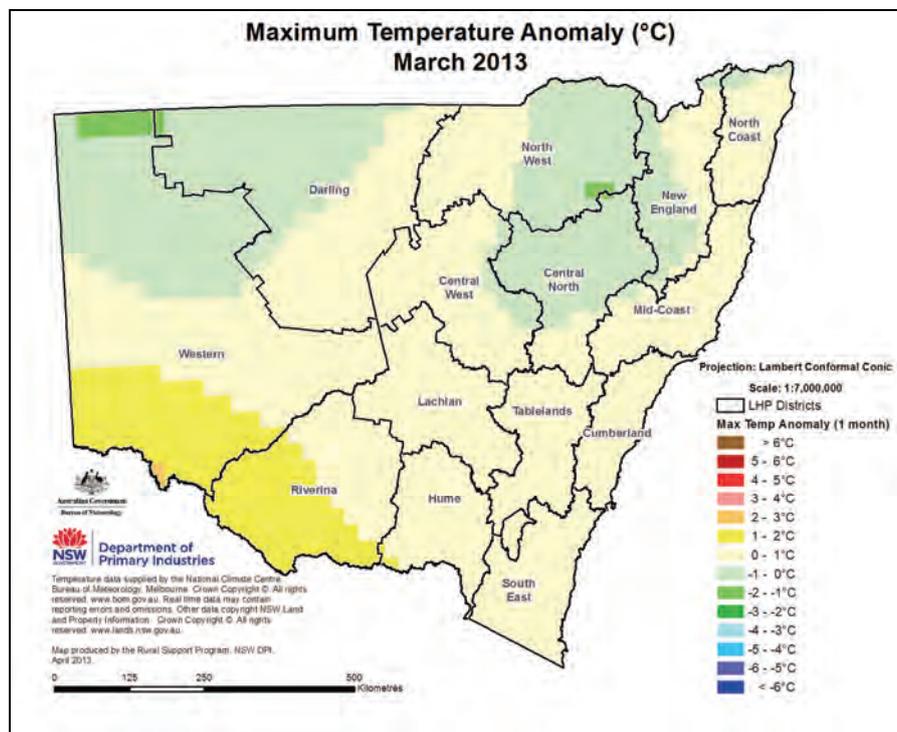


Total rainfall – half yearly

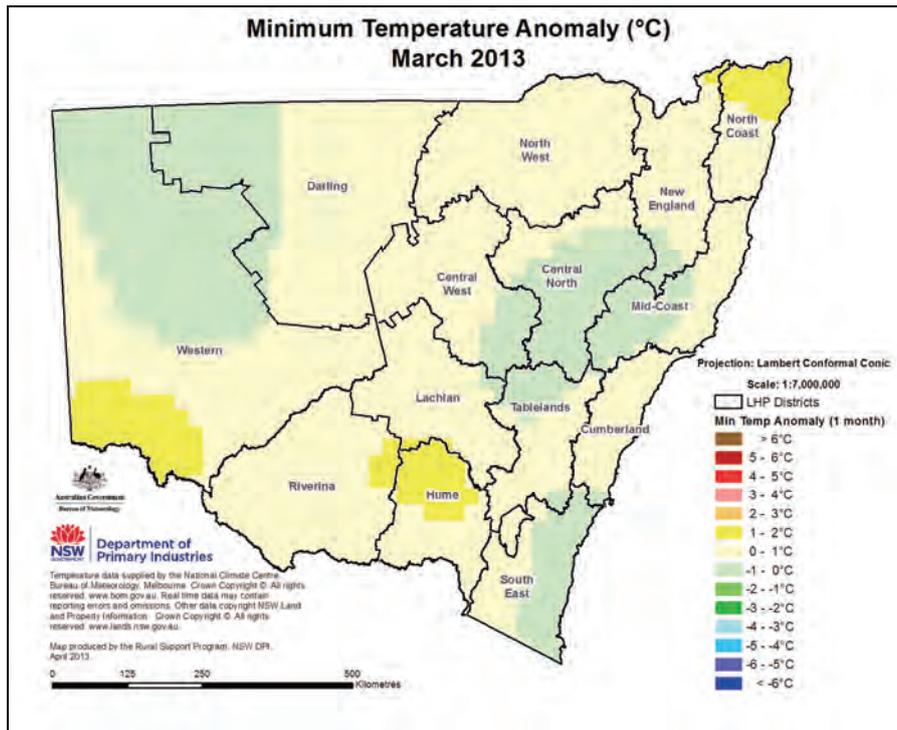


Temperature

Maximum monthly temperature anomaly

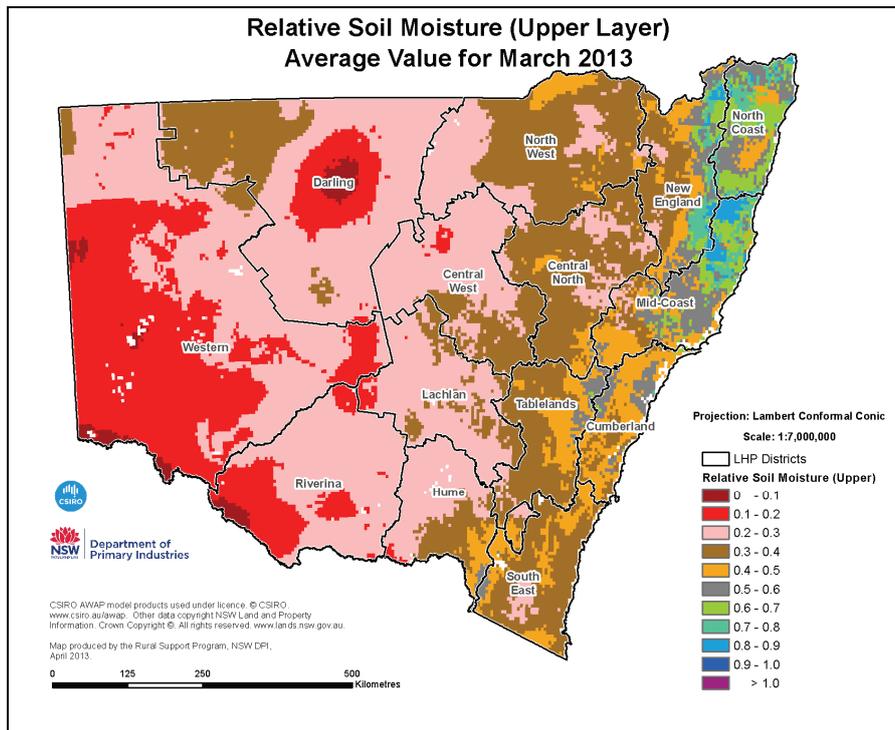


Minimum monthly temperature anomaly

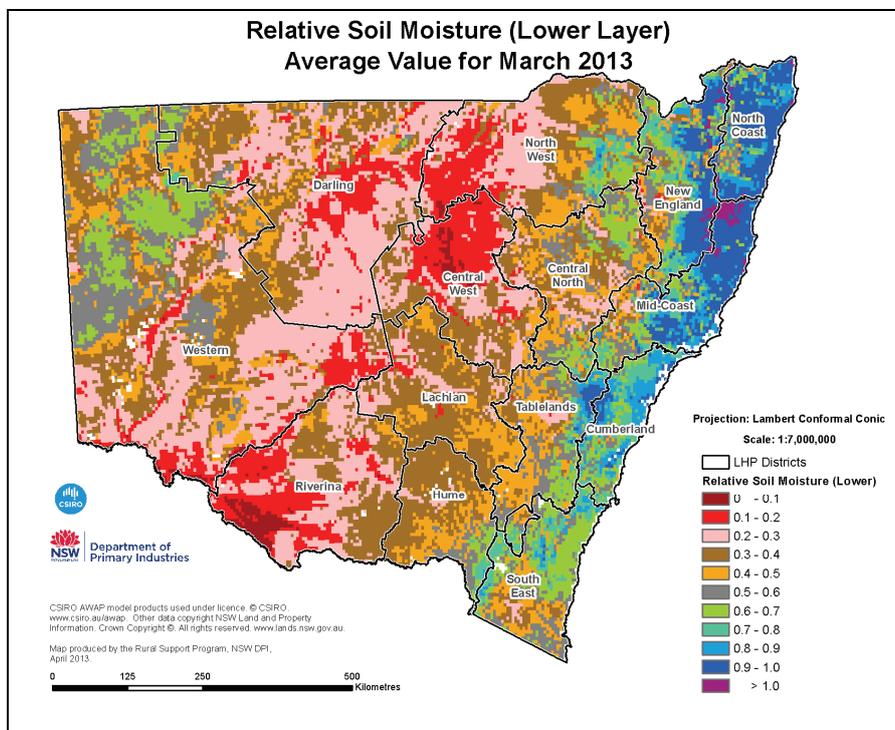


Soil moisture

Relative topsoil moisture

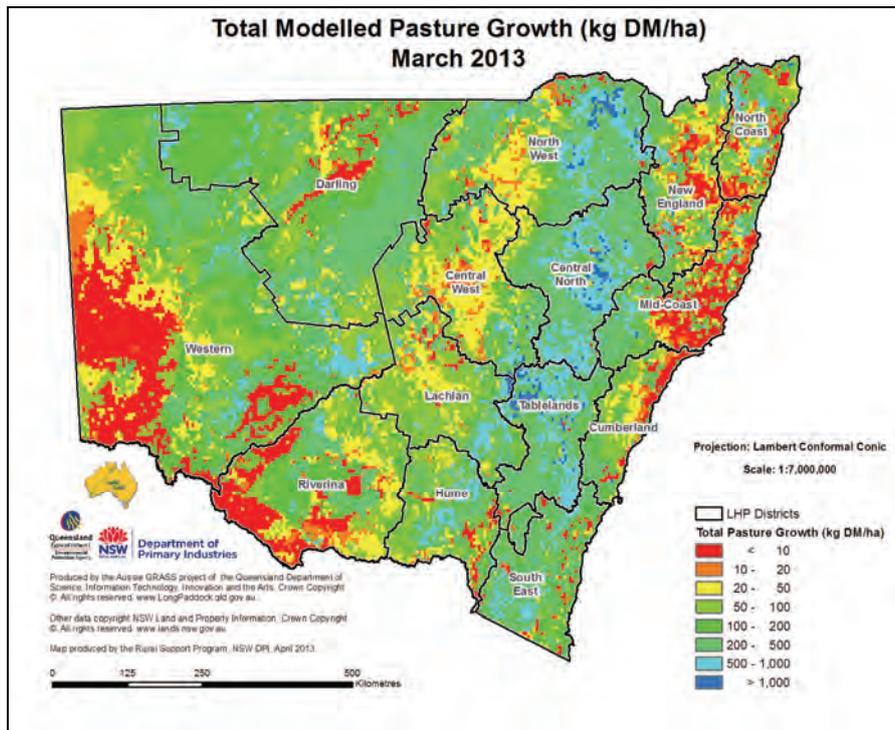


Relative subsoil moisture

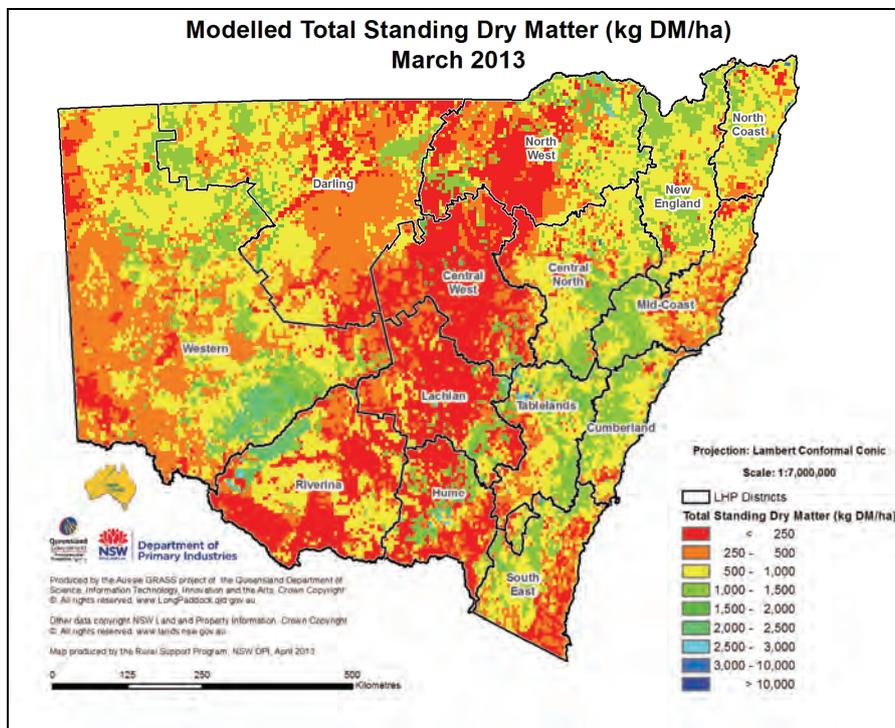


Pasture growth and biomass

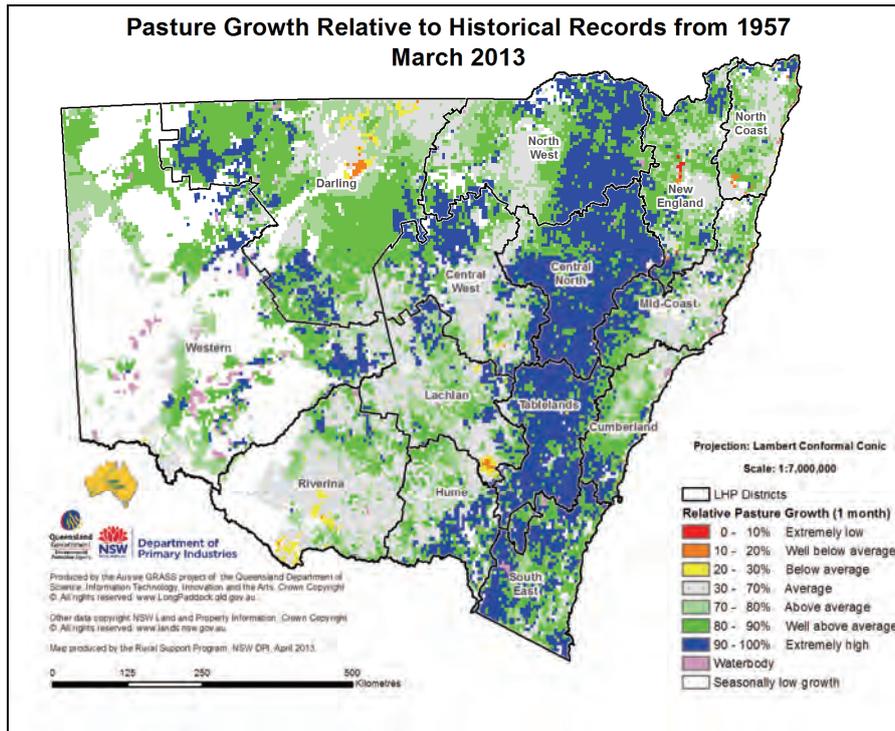
Modelled pasture growth



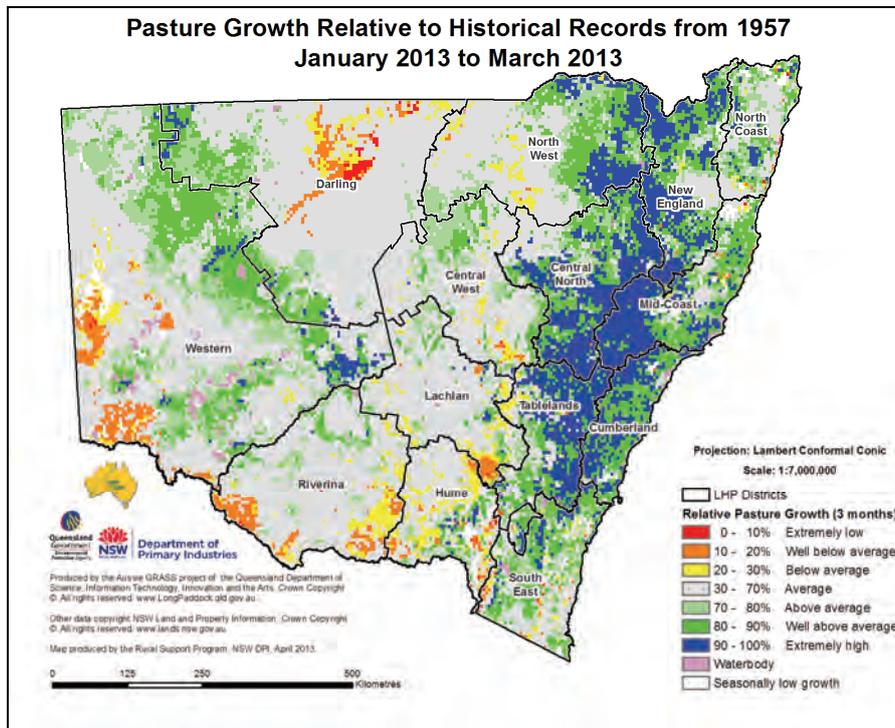
Modelled biomass



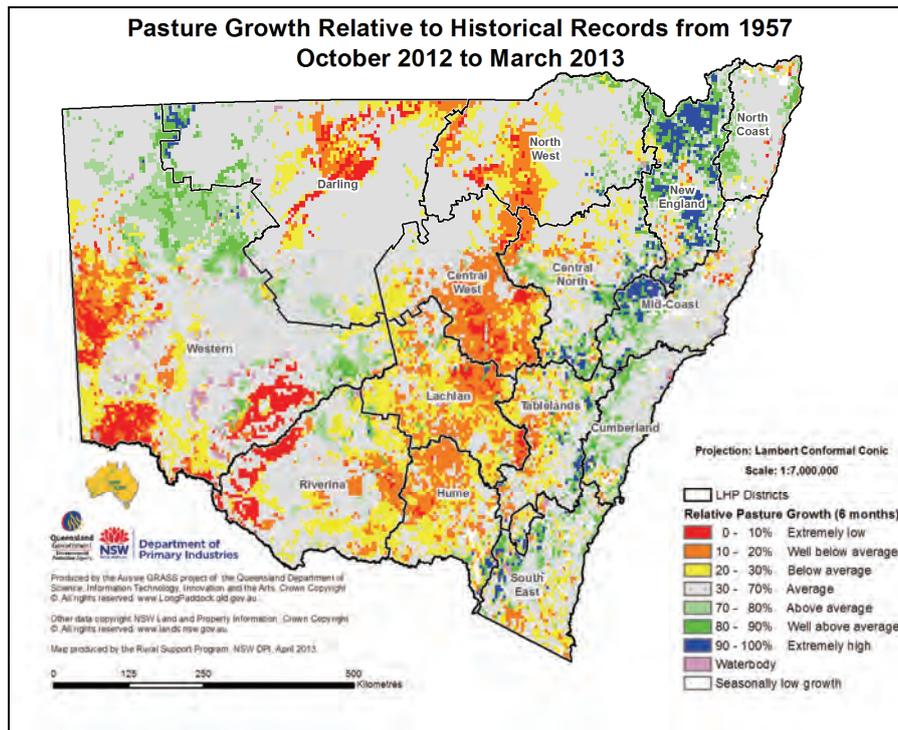
Relative pasture growth – monthly



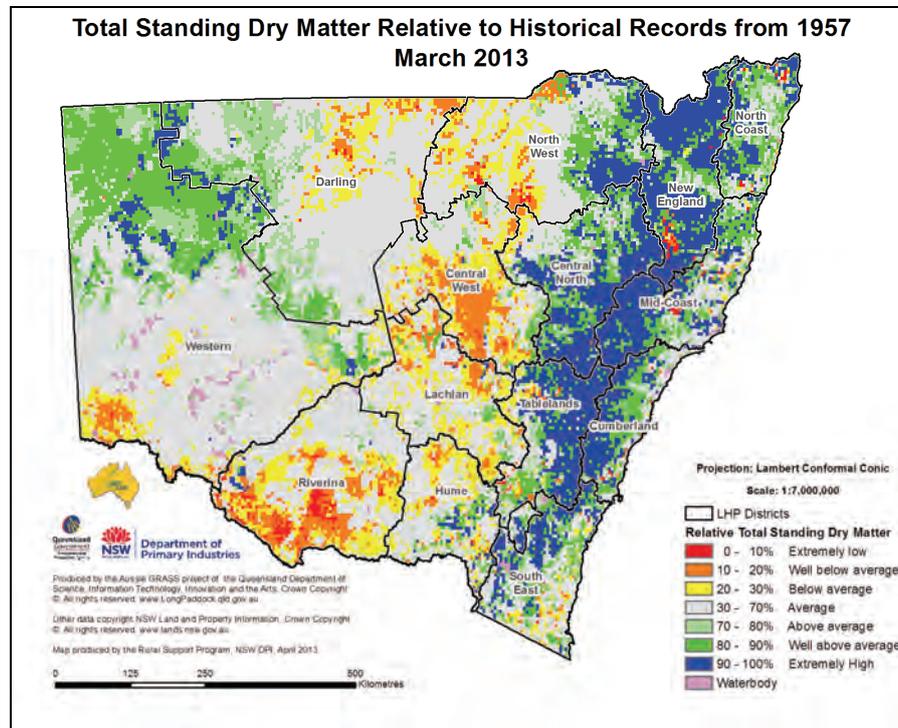
Relative pasture growth – quarterly



Relative pasture growth – half yearly



Relative biomass – monthly



More information

For more information, contact the NSW Department of Primary Industries.

Acknowledgments

Information used in this report was sourced from the Bureau of Meteorology, CSIRO, the Queensland Department of Science, Information Technology, Innovation and the Arts, NSW Livestock Health and Pest Authorities and the NSW Department of Primary Industries.

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Published by the Department of Primary Industries.

INT13/31253