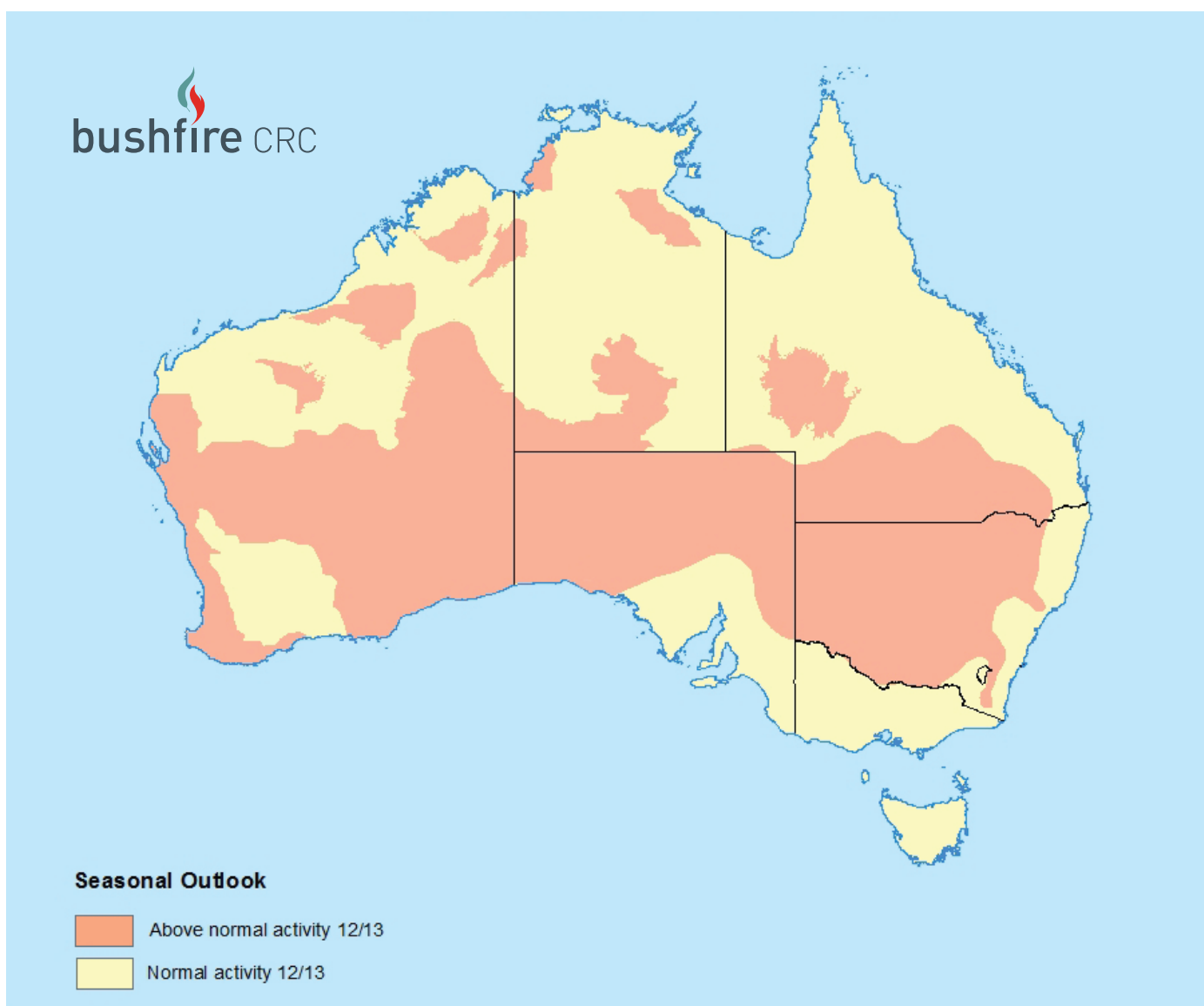


FIRE NOTE

ISSUE 95 AUGUST 2012

SOUTHERN AUSTRALIA SEASONAL BUSHFIRE OUTLOOK 2012-13



SUMMARY

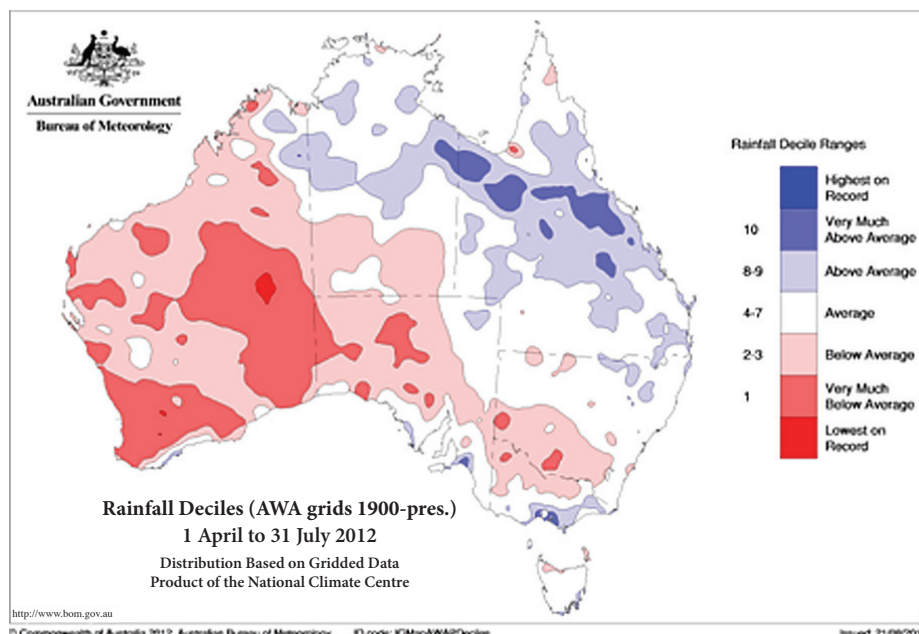
Large areas of southern Australia, from the east coast to the west coast, face above average fire potential for the 2012-13 fire season, despite the extensive fires in some parts of the country over the last 12 months. However, the area most at risk does not extend as far north as was seen in 2011-12. The above average forecast is due to the abundant grass growth from the high amount of rain from two strong La Niña events seen in the past two years across the eastern

seaboard and South Australia. Fuel moisture content within forests is still high, but this rainfall has continued to provide widespread vegetation growth in the grasslands, which remain a threat. Elsewhere across southern Australia, the fire potential is considered to be average for 2012-13, but average fire conditions can still produce fast running fires. The above map combines the southern bushfire outlook with the northern bushfire outlook, which was released as *Fire Note 93* in early August.

DEFINITIONS

Fire potential: The chance of a fire or number of fires occurring of such size, complexity or other impact which requires resources (from both a pre-emptive management and suppression capability) beyond the area in which it or they originate. Fire potential depends on many factors including weather and climate, fuel abundance and availability, recent fire history and firefighting resources available in an area.

Rainfall decile: A decile is a statistical technique that ranks sorted observations into 10 equal groups. A decile rainfall map (as seen in Figure 1) will show whether the rainfall is above average, average or below average for the chosen time period and area.



BUSHFIRE POTENTIAL

Bushfire potential depends on many factors. For grass fires, the stage is set by the previous wet season. The volume, location and timing of rainfall are critically important when estimating fuel volumes and growth. They also affect the timing of the curing (that is, the drying) of the fuel.

The climate outlook for the next few months is also a crucial factor. Of particular interest are the future tendencies of Pacific sea surface temperature associated with the El Niño-Southern Oscillation, a major climate driver over Australia. Other less quantifiable factors, such as the distribution and readiness of firefighting resources, are also considered.

Chaired by Simon Heemstra, Manager Community Planning at the New South Wales Rural Fire Service, the Southern Seasonal Fire Assessment Workshop met at the headquarters of the Rural Fire Service in Sydney on 21 and 22 August. The workshop, supported by the Bushfire CRC, brought fire and land managers, climatologists and meteorologists together to evaluate the upcoming season for the southern part of Australia. During the proceedings they discussed the seasonal outlook for the imminent fire season, enabling the production of this *Fire Note*.

Attendees included representatives of the Bushfire CRC, the Australasian Fire and Emergency Service Authorities Council, the Bureau of Meteorology, the Australian Capital Territories Parks, Conservation and Lands and Emergency Service Agency, the New South Wales Rural Fire Service, New South Wales National Parks and Wildlife Service and Fire and Rescue New South Wales,

South Australia's Country Fire Service, the Tasmania Fire Service, Victoria's Country Fire Authority and Department of Sustainability and Environment and Western Australia's Fire and Emergency Services Authority. Workshop attendees noted that grass fires would pose the biggest risk, much like last season. Some jurisdictions have already experienced bushfires; this is earlier than what would be considered the norm.

The *Southern Australia Seasonal Bushfire Outlook* provides information to assist fire authorities in making strategic decisions such as resource planning and prescribed fire management, and to reduce the negative impacts of bushfire.

ANTECEDENT CONDITIONS

The start of 2012 again saw Australia under the influence of La Niña. Combined, the last two years have yielded both Australia's wettest 24 month period on record (April 2010 to March 2012), and wettest two calendar year periods (2010–2012). The record average rainfall across Australia of 1411mm in 2010–2011 beat the previous record of 1407mm from 1973–1974.

This latest La Niña was again associated with widespread flooding. Much of inland southern and far northern Queensland, most of New South Wales, northern Victoria, and central Australia experienced flooding at least once between late November 2011 and March 2012.

The 2011–12 La Niña was also associated with cooler than average maximum temperatures between January and March 2012. Maximum temperatures across the majority of Australia were below the long term average during this time, with notable exceptions in Tasmania

and south west Western Australia, which both recorded above average temperatures over this period.

The breakdown of the La Niña since April has seen a return to drier weather patterns during the southern wet season.

April to July rainfall in Western Australia was below average, with large areas in the south west very much below average. Southern inland New South Wales, north western Victoria and large areas of South Australia have all received below average rainfall. Much of the remainder of Australia received average rainfall; the exception being northern Queensland and southern Victoria, which received above average rainfall, with some pockets receiving very much above average rainfall.

Consistent with the April to July rainfall patterns, maximum temperatures were above average across southern Western Australia, Tasmania, southeast South Australia, northwest Victoria and southwest New South Wales.

August to date has been much warmer than average across most of Western Australia, while the remainder of southern Australia has been close to average. Rainfall for August is currently below average in most parts of southern Australia, and well below average in Western Australia, South Australia, south eastern Queensland and northern and coastal New South Wales.

EXPECTED CLIMATE OUTLOOK

Since the breakdown of the La Niña over autumn, indicators for the El Niño Southern Oscillation have been trending toward the development of an El Niño, with many

indicators now close to El Niño thresholds. The latest weekly Nino 3.4 index to 19 August was -0.86 deg C. This is consistent with most model forecasts which indicate that the central equatorial Pacific may exceed El Niño thresholds in spring. However, some models suggest a borderline weak El Niño and this is supported by current sub-sea surface observations.

The Bureau's official spring seasonal outlook indicates an increased chance of below average rainfall in central to southeast South Australia, southern inland New South Wales, northern and eastern Tasmania and much of Victoria. In contrast, a wetter spring is more likely in southwest Western Australia, southern Queensland and north eastern New South Wales. This outlook is a result of emerging warmer than normal waters in the tropical Pacific Ocean and persistent warmer than normal waters in the Indian Ocean. The maximum temperature outlook shows an increased chance of a warmer than normal spring in eastern South Australia and the eastern states.

REGIONAL SUMMARIES

Western Australia

In general, above average fire potential is expected across the Mid-West, Desert and Nullarbor regions. This as a consequence of high fuel loads from extensive rainfall, resulting in very high annual grass growth. This assessment is mindful of the increased prescribed burning planned across these regions, particularly the Nullarbor.

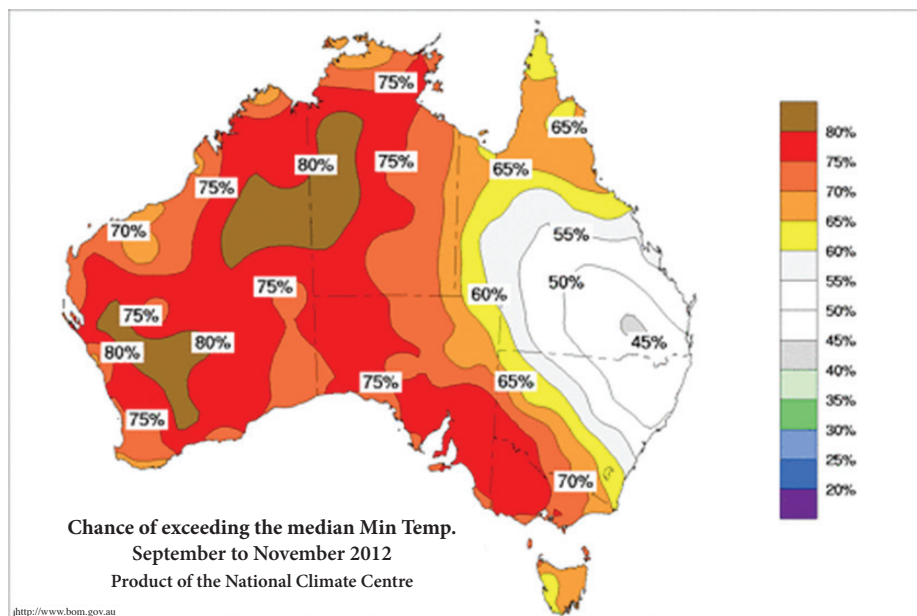
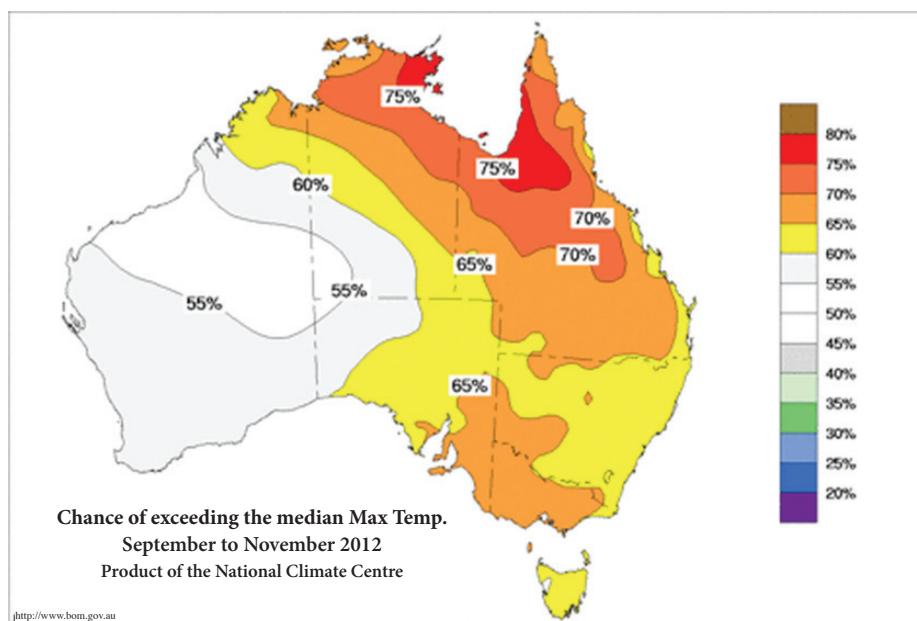
In the South West, the bushfire potential is expected to be above average as a consequence of reduced rainfall, soil moisture deficit and high fuel loads. Prescribed burning operations have also been hampered because of the weather.

In the Wheat Belt, average fuel loads are anticipated from the average rainfall and annual grass growth that has occurred across the region.

South Australia

Above average fire activity is predicted in the western part of the West Coast, North East Pastoral and North West Pastoral districts due to abundant and continuous grass fuels. This is a result of the previous season's growth remaining and the rainfall received, linked with conducive growing conditions. For the remainder of the state, including the southern settled areas, the most likely scenario is for near average levels of fire activity.

Resource implications of an above average fire danger season may see the need for



firefighting resources for a longer period of time being committed to incidents. The North East and North West Pastoral areas may pose resourcing issues during this fire season, as they did last season when firefighters and aircraft were committed for lengthy periods.

The South Australian border with the Northern Territory in the Simpson Desert has received above average rainfall. Conducive growing conditions have seen an abundance of growth, increasing the above average fuel loads from previous growing seasons.

Queensland

Current grass fuel levels throughout Queensland are considered abundant and continuous. Although Queensland has experienced slightly wetter than normal early winter conditions, August to date has seen below average rainfall and cooler temperatures with extensive frosts, especially

in the western and central western parts of Queensland. This contributed to a rapid increase in grassland curing, and general vegetation conditions in the south west of the state may indicate an early start to the bushfire season over a wide area.

Fast running, high intensity grass fires can be expected over most of the state. There are particular concerns for large grass fires in southern and western Queensland. Woodlands with a grassy understorey may exhibit similar fire behaviour; however rates of spread may be slightly less than those of open grasslands. Forest fires with a moderate intensity are expected early in the bushfire season and fire intensity is likely to increase during the later part of the season, especially if the season is prolonged. This is due to a drying soil moisture profile, an increasing forest fine fuel layer and the influence of

warmer temperatures and dry north-west to south-westerly winds.

The areas assessed as being of above average fire risk are the grasslands and pastures of south western Queensland, which incorporates the areas from Stanthorpe and the Granite Belt district, north to Toowoomba, Dalby, Miles and Taroom, west to the South Australian border and south to the New South Wales border. Low stocking levels and above average fuel loads have the potential to significantly increase fire activity in these areas. All other areas are considered an average fire risk.

New South Wales

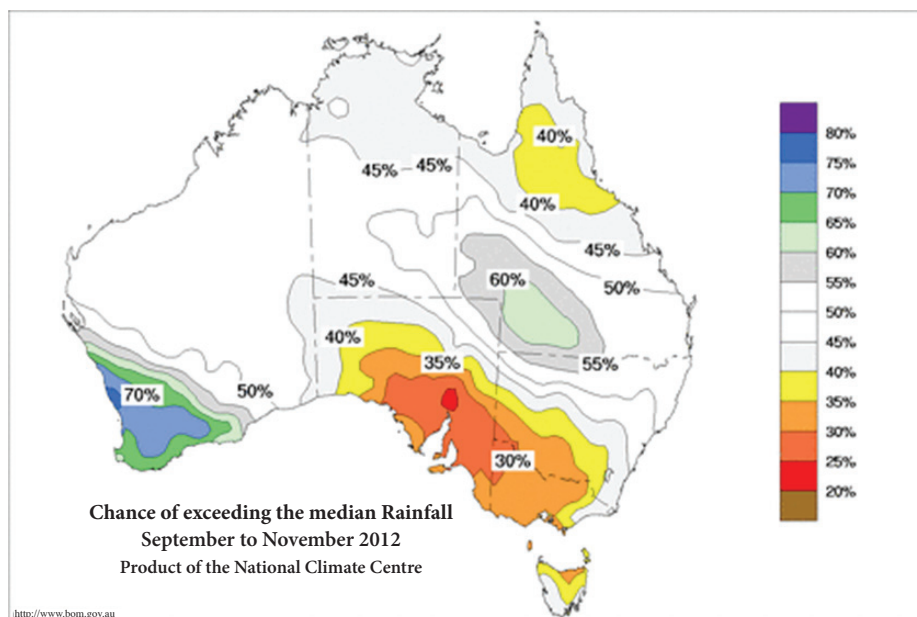
Above average rainfall over the state for much of the previous two years has resulted in heavy grass fuel loads throughout grassland areas. These grassland areas include those west of the Great Dividing Range, the Tablelands, the Upper Hunter and the far west. Above normal fire potential has been assessed in these areas due to high grass fuel loads plus an increased likelihood of warmer and drier conditions for spring.

The fire potential is expected to be average for forested regions east of the Great Dividing Range due to average fuel moisture.

Australian Capital Territory and South East New South Wales

Above average rainfall over the past two seasons has produced considerable grass fuel loads in areas where grazing has been low. Winter frosts and snows have increased curing rates in tableland and highland regions. These cured grasses, combined with expected low spring rainfalls associated with a weakly developing El Niño, are expected to result in above normal fire potential in the Monaro region and Murrumbidgee corridor.

Forest fuels are well saturated due to good lower level soil moisture and are expected to take some time to dry, especially in



rugged landscapes. As a result average fire potential in these southern ranges and slopes is expected.

Victoria

Victoria is a fire prone environment; fires occur every year and are a part of the landscape. At this stage it is anticipated that Victoria will experience an average fire season, although it is important to note that fast running grass fires occur in any average Victorian season. Key grassland areas that authorities are monitoring include the Mallee, Wimmera and the South West. This may be expanded over the coming months as growth patterns become established.

Over the past 12 months higher than average rainfall has occurred over the east of Victoria. Soil and forest fuel conditions are consequently saturated in the east, making it too early for an accurate assessment of fire potential in Gippsland and the North East.

The expectation of warmer and drier conditions over the coming months will present ideal growing conditions for grass across Victoria.

This will be the main contributor to the fire hazard, beginning in the west.

Victorian fire agencies are concerned that this year's early fire potential assessment as average may result in complacency among Victorian communities to the dangers of short-lived and destructive grass fires.

Tasmania

Normal to below normal potential is expected for the fire season up until the New Year. There is very little likelihood of large scale fires up to this time. Large fires may be possible in grasslands in the late summer due to retained thatch combined with expected spring growth. The Moorlands are currently wet and as such the fire potential has been assessed as normal. Forest fuel availability will be limited unless serious rainfall deficiencies occur.

Note: For full details of the seasonal bushfire outlook for the Northern Territory, as well as northern Western Australia and northern Queensland, see the *Northern Australia Seasonal Outlook*, issued as *Fire Note 93*.

Fire Note is published jointly by the Bushfire Cooperative Research Centre (Bushfire CRC) and the Australasian Fire and Emergency Service Authorities Council (AFAC). This Fire Note is prepared from available research at the time of publication to encourage discussion and debate. The contents of the Fire Note do not necessarily represent the views, policies, practices or positions of any of the individual agencies or organisations who are stakeholders of the Bushfire CRC.

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Bushfire CRC is a national research centre in the Cooperative Research Centre (CRC) program, formed in partnership with fire and land management agencies in 2003 to undertake end-user focused research.
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AFAC is the peak representative body for fire, emergency services and land management agencies in the Australasia region. It was established in 1993 and has 35 full and 10 affiliate member organisations.