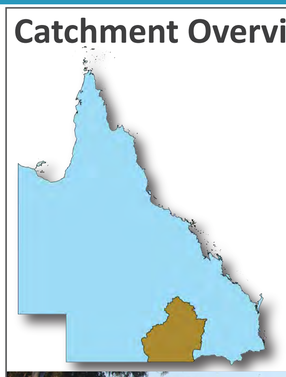
# Balonne-Condamine River Catchment
## Local Knowledge Map

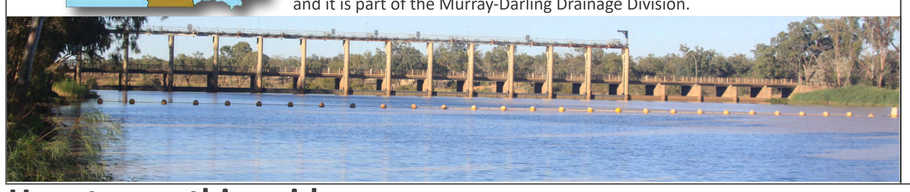
Resilient Queensland
Queensland Reconstruction Authority

QUEENSLAND GOVERNMENT

## Catchment Overview



This catchment area is defined by the full extent of the Wallam Creek, Balonne and Maranoa Rivers and parts of the Moonie Rive catchment within the Maranoa, Regional Council and the Paroo and Balonne Shire Council boundaries. These sub basins are part of the greater Balonne Condamine Basin which in turn is part of the Murray Darling Drainage Division. Wallam Creek is furthest west and is a wide catchment characterised by sheet flow rather than distinct channels. The Maranoa River commences in the high country of the Carnarvon Ranges and is a long and slender catchment flowing past the township before joining the Balonne just north of St George. The Balonne River pans out into numerous slow flowing shallow channels before reaching the NSW border. To the north east, the Balonne is irrigator country, floods are measured in megalitres and are harvested for their value to agricultural production. There are a number of water storage facilities along the Balonne and it is part of the Murray-Darling Drainage Division.



## Climate & Rainfall

Weather and climate characteristics in the Balonne sub-basin in the last 30 years (1989 - 2018):

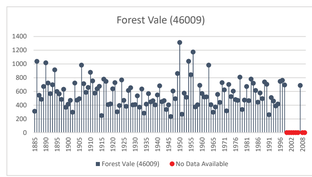
Annual rainfall has been relatively stable, with summer rainfall being reliable, and rainfall in winter decreasing. The region averages an annual rainfall of 550mm over the past 30 years (1989-2018) however, average annual rainfall does fluctuate from year to year with natural variability.

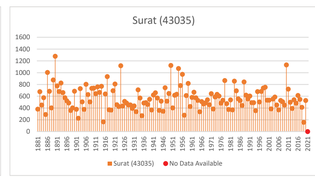
Dry years have occurred 10 times and wet years have occurred eight times. It is noted that the Millennium drought accounted for three of these dry years. Hot days have become more frequent with more consecutive days above 38°C.

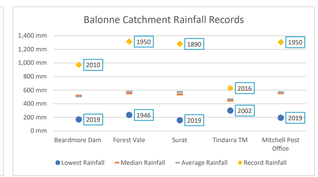
Summer rainfall (November to March) in St George has decreased by 17mm from the 308mm experienced between 1959-1988 to 291mm during the period between 1989-2018. Spring frosts have also become more common and have been occurring later. More frosty night have tended to occur during through dry winter and springs, when soil moisture is low and cloud cover is infrequent.

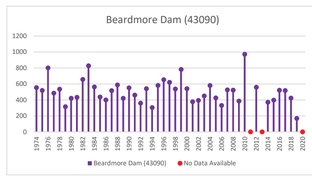
Rotary Park, St George

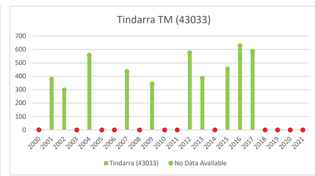
Nebine Creek

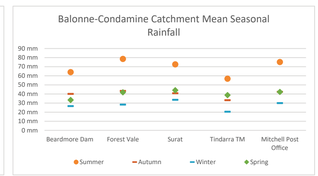


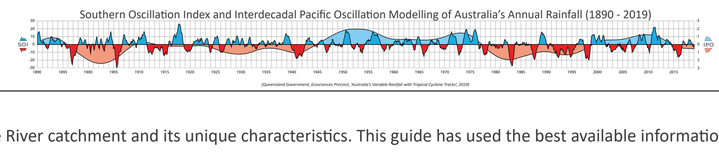




## How to use this guide:

The information below provides local knowledge on landscape characteristics and flood behaviour. This is provided for local land managers, Council staff, and State Government officers to better understand the Balonnne-Condamine River catchment and its unique characteristics. This guide has used the best available information at the time of printing. It is intended to help you assess what type of flood is likely to occur and indicate expected feed volumes. You may wish to record your own flooding and landscape characteristics on the map.

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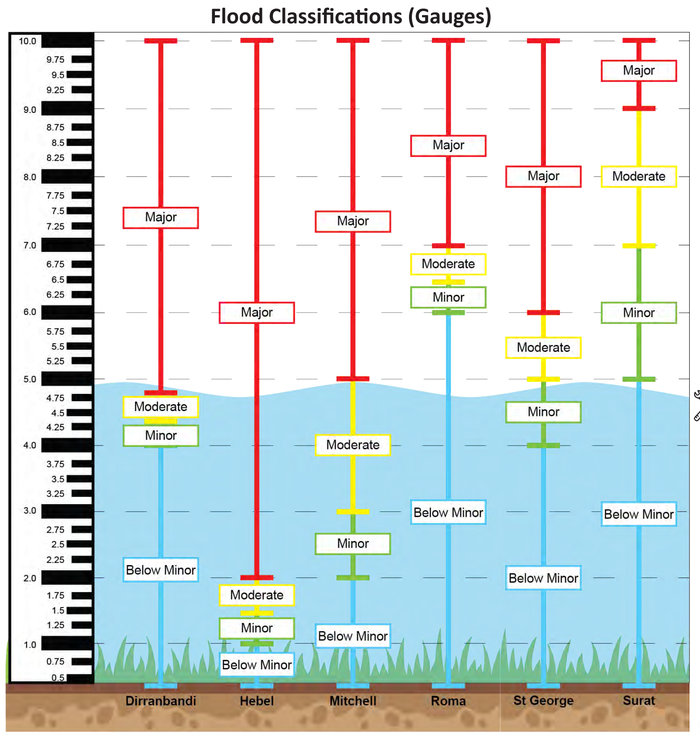
### Balonne-Condamine Region BoM Flood Classifications (Gauges)




Fires are generally started from dry lightning in this area and are often driven from south-south west winds.

Flood waters in the upper Maranoa and Merivale Rivers are extremely fast flowing due to elevation and cause extensive damage. Flows can also deposit substantial amounts of sand on creek crossings, which can cause challenges to clear post event.

12 hours (Approx.): Top of Merivale River to the top crossing at Mt Moffat Road.

There is limited telecommunications in here with some areas having no reception.

During a large rainfall event, the convergence of the Maranoa and Merivale Rivers will happen at two different times due to the path of the river. This may prolong and flatten the flood.

Ground water is lower than 1,000m below the surface which means that it is often too deep to drill down to for bores and therefore, these are few and far between.

Debris has been recorded flowing at 80km/hr at Mitchell during a flood. There is very fast flows.

The Mitchell Weir is fish friendly in that it will allow fish to swim back up stream.

There has been some pasture dieback from mealybug attack.

A general rule to determine flood height at Mitchell is to take the height at Forestvale, half it, and subtract another metre (i.e. 7m at Forestvale = 2.5m at Mitchell).

There is a lot of vegetation in the creek beds (tea trees and casuarina). The vegetation doesn't really slow the flood flows though due to the fall. Also, the river corridor can act as a fire corridor in seasons following a good rain event due to increased vegetation.

Brigalow scrub and high fuel grasses are in this area.

In the 1960's, Parthenium from Clermont was recorded here. This area is known as the home of Parthenium.

Basalt tablelands.

This is a bigger catchment than the Bungil.

In good years, vegetation may slow flows down by a third. In drought, it takes half the time with no vegetation.

12 hours (Approx.): Top of Bungil Creek to Roma in drought

Organ and Mannacdilla Creeks are very quick and have velocity that can hold the Maranoa River back during big flows. The water here can be very dirty during a flood.

There has been a general increase in creeks silting up in the area, in particular Amby Creek due to gully head erosion in waterways feeding the creek.

It took 8 hours for the flood to reach Roma from Norton Station in 2010.

Stock routes and roads in the region often follow First National original pathways.

When flood waters are over 9m at Currawenna Station then flood behaviour is difficult to predict as flood waters can fuse (i.e. break out).

Regrowth needs to be managed particularly box and ironbark after recent rains.

Pigs and dogs are an issue around Roma.

Water flows from here push water back into Blyth Creek.

All of these south flowing creeks can back up if the Condamine is flowing or full.

There are fewer permanent waterholes and less water in old springs than in the past.

Hawssia Cactus is to the south of Mitchell.

Flows in this part can be surprisingly fast.

Rainfall in 2009/10 was particularly good for the Roma area.

Water can back up to Bony Creek if floodwaters are 11.5m over the guardrail at Surat.

This is a fairly well defined channel.

Mitchell and further down south may not necessarily flood when there is a big rainfall event in the upper Maranoa and Merivale Rivers in isolation. Floods can be caused when there is large rainfall on the floodplains or where there is rainfall in both systems.

Very hard country Run off flows into Wallam Creek.

This convergence point really slows everything down. The floods here often originate in the tributaries and not in the Maranoa itself.

Lots of Parthenium in Muckadilla Creek.

People were rescued from roof tops on Muckadilla Creek during the 2010 event.

This area turns into one big lake after 5-7 inches of rain on Bungil Creek.

Lots of Mother of Millions in this area.

Water can flow in a circular motion from flow back up along the system and may continue to do so until released downstream.

Floodwaters can sit at Warkon Choke for 5-6 days.

Debris has been found up to 3m in the trees above the water levels from past flood events.

This area can experience dry floods. The channels are more braided in this area.

Risk of fire from dry lightning.

People were rescued by helicopter at Marionvale Homestead in 2011.

Beranga and Spring Creeks flow both ways.

10 days (Approx.): Warwick to Surat

Wylarah diversion bank has been in place for approximately 20+ years. It has been noted that the bank now pushes water into Newstead and back into town.

Lesmoir can be isolated.

Properties on the Balonne River to the North East of Surat can be isolated.

Surat and Roma Roads were cut for two weeks during the 2011 event.

2011 set a new flood height record of 11m for Surat. The town was isolated for a couple days. Once waters subsided, Surat Development Road and Thornby Roads become the two main routes out of Surat.

Neabul Creek can flow into the Wallam in a big event.

Water moves very slowly in this part. It is suggested that this could be because of aquifer recharge.

Plenty of warning but long periods of isolation are experienced at Begonia.

The Maranoa can breakout around St George in a big flood, but will usually run into the dam before there is a breakout. Sometimes it filters out before it even gets there in this stretch.

The choke is low country characterised by Coolibahs. The two creeks flowing into the base of the Barradale Choke are believed to contribute to flows downstream, potentially up to 10%. This is known by adding the upstream and downstream gauges and there being a difference.

Due to extremely muddy soils, it can be very difficult to reinstate access. It is said by locals that you could bog a duck for months out here.

All channels merged together in the 2010 event.

The elevation change from Carnarvon to Woodlands is the same elevation change for the balance of the catchment to the Murray Darling (i.e. the top of the catchment is very steep and the bottom of the catchment is very flat).

Ironstone outcropping.

Teelba School can be isolated.

This area is a chopper rescue area.

Aquifers used for irrigation in this area.

The Balonne River may gain speed again in this section of the river.

Cattle and some goats including boer infused goats can be found south of Mitchell on Nebine Creek.

This flow can take 3 hours if there is no feed and fast falls.

There is Parthenium from Wiri to Beardmore Dam.

The Balonne River can flow into the Moonie River during a big flood. It is believed that historically the Balonne would actually flow down into where the Moonie is naturally.

Mungallala Creek followed the Balonne Highway in 2010-12.

6 hours (Approx.): Cardiff to Bollon

Beardmore Dam has a capacity of 80,000ML/day. It has 12 gates and each will be opened when flows reach 40,040ML/day. Once there is greater than 160,000ML / day coming through, then it can cause trouble downstream.

It is not common for the Nebine and Wallam to be flowing at the same time however, they can flow in unison in a big flood. This occurs perhaps every 20 years or so.

All rivers can connect during a big flood.

Bollon levee was built after 2010 event.

Mulga used to be pulled in big rings to put less pressure on the landscape. Now it can only be pulled in lines which increases risk of erosion.

There is a gleer (breakout) here that flood waters can break out of the Maranoa and go past St George. Approximately 65ML/day.

The township may need to be evacuated when flood waters reach 14m; same height as the St George levee. This depends on the type of flood and current observations.

There has been a marked decreased in rainfall around St George in recent times.

Mungallala Creek does not drain into anything.

Nebine Creek flows into Mulga Downs. There is a lake on Mulga Downs which can flow into the Culgoa River when the lake is full.

5 days (Approx.): St George to Dirranbandi

Dirranbandi is an inland delta, with grasses that can withstand flooding. Soil in the Dirranbandi has a very deep profile and it is hard to retain carbon in deep soils.

5 days (Approx.): Dirranbandi to Hebel

The Balonne-Condamine alone may not flood St. George. The convergence of the Balonne and Maranoa Rivers may cause a flood. A lot of local creeks can flow into the Balonne-Condamine if there is a wet (rainy) flood. This also depends on the current status of the system and whether the Maranoa is full or has any sort of flow in it as well.

It takes 6 days for flood waters to reach Mungindi from Goondiwindi.

180,000ML / day impacts the Jack Taylor Bridge / Weir, or 10.7m to wet the deck of the bridge and 10.5m is on the approaches.

Murweh Shire
Maranoa Regional
Balonne-Condamine
Paroo Shire
Balonne Shire
Moonie
Border Rivers
New South Wales
Fitzroy
Roma
Surat
Mitchell
Bollon
Saint George
Dirranbandi
Hebel
Mungindi

## Handy Catchment Tips

- There are two rain gauges in Carnarvon Gorge National Park. These are important gauges as they are at the head of multiple catchments.
- Megalitres are a common form of measurement for floods in the area as that is the language used by irrigators.
- The upper Maranoa is a very fast catchment with a 1,200m elevation at the top of the Carnarvon Tablelands to 350m elevation at Mitchell. This is steeper than elsewhere.
- The 2010-2012 events were dry. It would have been different if it were raining.

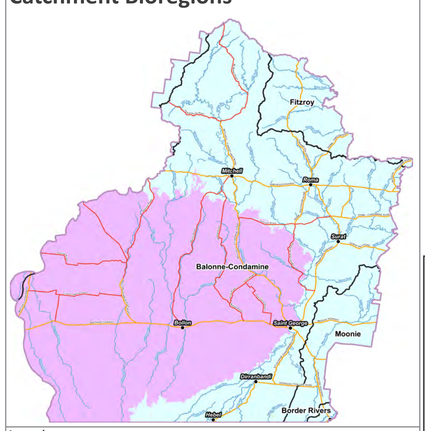
## Legend

### Geology / Landzones
- Tidal flats and beaches
- Coastal dunes
- Alluvial river and creek flats
- Clay plains
- Old loamy and sandy plains
- Inland dune fields
- Ironstone jump-ups
- Basalt plains and hills
- Undulating country on fine grained sedimentary rocks
- Consolidated sediments
- Sandstone ranges
- Hills and lowlands on metamorphic rocks
- Hills and lowlands on granitic rocks

### Local Knowledge
- Flood related information
- Agriculture/Feed information
- Vegetation related information
- Pinpoint between locations
- Community related information
- Water related information
- Fire related information
- Infrastructure related information
- Climate related information
- Road and Transport related information
- Mining related information
- Severe storm related weather
- Property related information
- Topography related information
- Tropical Cyclone/Cyclonic related weather

### Other
- Manual Gauge
- Automatic Gauge
- Stock Route
- Towns
- Mines
- State Controlled Roads
- Local Roads
- Watercourses
- Basin Boundaries
- Local Government Area Boundaries
- Train Line

## South-West Catchment Bioregions




## General Risk Awareness Information / Landscape Knowledge

- Unmanaged properties can be a significant fire and pest risk due to growth of vegetation. Prior to using fire as a land management tool, make sure the weather conditions are appropriate, and relevant information has been obtained and considered.
- More available water through stock troughs and dams etc. provides the opportunity for kangaroos to spread across the region. Dingoes will also prey on older kangaroos and joeys particularly.
- Allocations (flood harvesting) in the catchment slows flows. If there is a second flood, it will be a bigger risk as no more extractions occur.
- National parks are not fenced however, adjoining landowners can erect fencing.
- Mulga is a valuable resource here especially in dry times when it is used as fodder for stock. Mulga can take up to 12-15 years to regenerate after grazing depending on rainfall. Retaining ground cover is important for mulga country. The aim for fodder management is to keep mulga low by grazing and resting.
- Weeds in waterways is an issue with more weeds coming down watercourses than in the past.
- Water retention can be a challenge in areas with hard ground or geologies. Water infiltration and retention is linked to the health of the soil and the harder country creates a barrier to water infiltration.

## Tips for Graziers

- The general consensus is to allow grass or feedstock to be 1/3 consumed before the cattle are moved on or rotated to the next pasture. It is important to fence off the different types of native grasses so stock do not prioritise one over another and upset the balance of grasses. Goats sometime die when they have to start eating grass over Mulga trees (browsing).
- The management of feather top grass (Nassella tenuissimia), Harrissia cactus and Eragrostis sp. is an issue. Castor oil plant (Ricinus communis) is now present above the weir – the fruit is toxic to animals. Buffel grass can also be a problem where it is a monoculture and reduces diversity of pastures. Pimelea is a poisonous weed can affect cattle, loves winter when there is nothing to compete with.
- Having a diversity of grass species and not just buffel grasses is good due to different maturing times and extended feed availability. Buffel can form a monoculture which is hard to break. Buffel does not grow well in the sandstone country as conditions are too hard. It will not dominate Mitchell grass country in this region.
- Some landowners on the edge of exclusion fencing are finding that it acts as a funnel for pushing pest animals into areas where they might not have been a big problem in the past.

Map Authors: