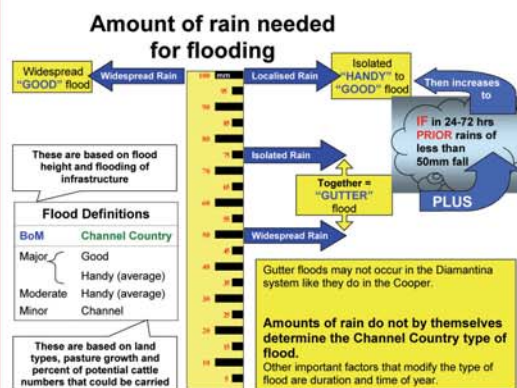


Diamantina River Catchment Flood Rules of Thumb

How to use this guide:

This guide has used the best information available at present. It is intended to help you assess what type of flood is likely to occur in your area and indicate what amount of feed you might expect. You may wish to record your own flooding guides on the map. You can add more value to this guide by participating in an MLA EDGENetwork Grazing Land Management (GLM) training package. GLM training helps you identify land types and flood zones and to develop a grazing management plan for your property



Channel Country Flood descriptions

Flood type	Description	Land Systems flooded	Hydrology	Pasture growth which supports:
Good	Good floods are similar to handy floods, but cover a much higher proportion of the floodplain (75% or more) and grow more feed per area than a handy flood.	C1, C3, C2	Flooded across most of floodplains 80-100% inundated	85 - 100% of potential cattle numbers
Handy (or useful)	Handy floods occur when the water escapes from the gutters, connecting up to form the large sheets of water. It can cover up to 50% of the floodplain. There is a large pasture response from these floods but yield and area is less than a good flood.	C1, C3	Pushing out of gutters across floodplain and into swamps and depressions 50-60% inundated	45 - 85% of potential cattle numbers
Gutter	Gutter floods occur when the water escapes from the main channels and spills over to the many small waterways (gutters) that flow from the main channels. These floods promote growth of a good body of herbage and grasses along the gutters.	C1	Pushing out of channels into gutters 5-15% inundated	5 - 25% of potential cattle numbers
Channel	The major channels run and water just spills over banks but does not escape to the surrounding floodplain. Limited feed grows along margins of major channels.	C1, limited to channel margins	Major channels breaking banks \sim5% inundated	5 - 15% of potential cattle numbers

What are the Channel Country floodplain land types?

C1: Frequently flooded alluvial plains with braided channels, often with deep and fast flowing water in major channels.

C2: Occasionally flooded, flat alluvial plains, generally with shallow and slow flowing water. This land zone is usually the furthest from the major channels, but includes higher areas of floodplains.

C3: Poorly drained swamps and depressions on alluvial plains of intermittent flooding, with variable water speed and depth, generally associated with the outer lying channels.

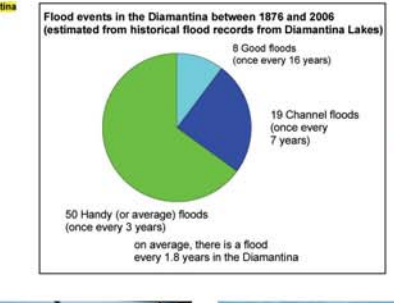
Estimated Summer Flood Pasture Growth in the Channel Country Floodplains.

Flood type	Frequently flooded plains (C1) (kg DM/ha of useful feed)	Occasionally flooded plains (C2) (kg DM/ha of useful feed)	Swamps and depressions (C3) (kg DM/ha of useful feed)
Good	1200-2500	1500-3500	4500-8000
Handy	750-1500	100-250	3500-6500
Gutter	400-1200	No growth	2000-4500
Channel	250-750	No growth	1200-2500



- Little floods make big floods. The little floods fill up the waterholes, wet the catchment and allow the next one to go further
- Local rain is important to pre-wet the ground before the flood waters arrive. The soil is soaked and the waterholes and swamps are filled, this allows the floods to spread further
- Where floods occur in succession the second flood will travel more slowly due to vegetation grown from the first flood. The second flood will often flow clearer, because of the vegetation filtering more sediment out and slowing water flow
- A handy flood is made better if there is local rain after the flood; a lot more feed will grow
- If there are 3-4 runs in the Diamantina prior to the main water flowing in December, it generally won't stop flooding until April or later
- A winter flood doesn't grow as much feed as a summer flood, but the feed lasts a lot longer
- You need the water to hold up at a decent (gauge) height for a good flood. This helps water more country and grow more feed

- Good local rain backs up outside water at Monkira
- Local rain and the running of Boundary creek fills the surrounding swamps (which take up a lot of water) and helps spread the water onto Mooraberree
- Milwarina creek flows into Nurgully waterhole
- For Durrie, if the western creeks run, the water will reach Birdsville while the river is still rising. This leads to a better flood on the Western side and increases the flood value by about 25%
- A second run in the river at Durrie, is usually crystal clear
- Moongera channel cuts the Birdsville track and flows into Goyder Lagoon
- Andrewella waterhole (on the main channel at the boundary between Alton Downs and Clifton Hills), has to be filled before it runs into Goyder Lagoon
- If the Georgina and Diamantina Rivers hit Goyder Lagoon together, there will be an excellent flood downstream
- Georgina Water flows through Eyre Creek & the Mulligan River, into the western section of Goyder Lagoon near Tepamirri waterhole.
- Warburton Creek carries water from the Diamantina and Georgina Rivers into Lake Eye
- The Warburton River at Cowarie is usually a shallow waterhole (left), but it can run a banker (right) from a couple of inches (50mm) of rain in the stony plains to the north



The Cadell Creek catchment gets quite a few storms. It is mainly hard ridge country so the water runs fast. This fast water can close the channels at Brighton ahead of the Diamantina River water

2 inches (50 mm) rain off the ridges leads to local flooding

3-4 inches (75 - 100 mm) of rain will flood Cadell Creek enough to block up the Diamantina

Flood travel time varies and depends on what was before it. If it is a first flood it usually takes about 10 days from Winton to Brighton Downs. In Feb 2000 it only took 5 days because the waterholes were full from earlier runs

Pot Jostler Creek comes out of a lot of hard country and floods out on Brighton Downs, growing useful feed. 5 inches (125 mm) of rain, plus water from Milparoo, will give a 9.8 feet (3 m) flood at Diamantina Lakes

If the Diamantina River holds up at 10.8 feet (3.3 m) for 3 weeks at Diamantina Lakes:

Monkira should receive a handy flood; Durrie a good flood; Roseberth a handy flood; and Clifton Hills a good flood

"How Often" are flood rains received? Proportion (%) of years that rainfall in 24hrs is at least

100 mm	75 mm	50 mm	Location
3	9	34	Springvale
2	6	27	Diamantina Lakes

Good rain at Springvale (over the Spring creek and Nail creek catchment), holds up the river to Brighton Downs

About 2 inches (50 mm) of rain on pebbly country can lead to handy local flooding e.g. from Edkins Creek

At Monkira Station:

- Need 10 feet (3.0 m) of water before it starts to spread out
- If water holds up for 1 week, it will give a handy flood at Monkira & Durrie
- If water holds up for 3 weeks at 11 feet (3.3 m) it will give a good flood at Monkira, Durrie, Pandie Pandie & Clifton Hills

"How Often" are flood rains received? Proportion (%) of years that rainfall in 24hrs is at least

100 mm	75 mm	50 mm	Location
7	17	31	Monkira
5	10	26	Birdsville
2	7	19	Pandie Pandie

Pandie Pandie needs the eastern channel of the Diamantina flowing to give a good flood

A flood needs to be about 13 feet (4.0 m) at Monkira for 10 - 14 days to get a flood that spills out of the channels at Pandie Pandie

If the flood is 10.8 feet (3.3 m) and holds up for 1 week at Monkira, then Goyder Lagoon will half to three quarter fill

Water will make it to Pandie Pandie when the gauge at Birdsville reads 24.6 feet (7.5 m)

Moongera channel cuts the Birdsville track and flows into Goyder Lagoon

Andrewella waterhole (on the main channel at the boundary between Alton Downs and Clifton Hills), has to be filled before it runs into Goyder Lagoon

If the Georgina and Diamantina Rivers hit Goyder Lagoon together, there will be an excellent flood downstream

Georgina Water flows through Eyre Creek & the Mulligan River, into the western section of Goyder Lagoon near Tepamirri waterhole.

Warburton Creek carries water from the Diamantina and Georgina Rivers into Lake Eye

The Warburton River at Cowarie is usually a shallow waterhole (left), but it can run a banker (right) from a couple of inches (50mm) of rain in the stony plains to the north

The DP&F pasture site at Monkira during the handy (average) flood of 2004

"How Often" are flood rains received? Proportion (%) of years that rainfall in 24hrs is at least

100 mm	75 mm	50 mm	Location
5	15	28	Clifton Hills
1	6	12	Cowarie



All heights are in metres on flood gauges

Data sources: (Bureau of Meteorology 2002) (C) Copyright Commonwealth of Australia. Bureau of Meteorology (BoM) Natural Resources and Water (NRW) "How Often" - APSRU (DPRAP, MRBA, CSIRO, UQ) - data SLQ (BoM, MRWA) (C) Photographs used with permission from private collectors. Text sourced from interviews conducted by the Sustainable Grazing of the Channel Country Floodplains project team. ANUFLD - report to the community, DMLBC, 2004

Map Authors: David Phillips, Ben Lynes, Kirsten Forest, Peter Connelly & Darrell Horrocks, October 2006

The western side of the Diamantina is hard ridge country and is what really drives the floods

Flood time between Kynuna and Davenport Downs

Kynuna to the River junction near Elderslie 7 days
the River junction to Brighton Downs 7 days
Brighton to Diamantina Lakes 3 days
Diamantina Lakes to Davenport Downs 2 days

2 inches (50 mm) rain off the ridges leads to local flooding

3-4 inches (75 - 100 mm) of rain will flood Cadell Creek enough to block up the Diamantina

Flood travel time varies and depends on what was before it. If it is a first flood it usually takes about 10 days from Winton to Brighton Downs. In Feb 2000 it only took 5 days because the waterholes were full from earlier runs

Pot Jostler Creek comes out of a lot of hard country and floods out on Brighton Downs, growing useful feed. 5 inches (125 mm) of rain, plus water from Milparoo, will give a 9.8 feet (3 m) flood at Diamantina Lakes

If the Diamantina River holds up at 10.8 feet (3.3 m) for 3 weeks at Diamantina Lakes:

Monkira should receive a handy flood; Durrie a good flood; Roseberth a handy flood; and Clifton Hills a good flood

"How Often" are flood rains received? Proportion (%) of years that rainfall in 24hrs is at least

100 mm	75 mm	50 mm	Location
5	13	45	Brighton Downs
4	14	35	Eldon Park

Kells Creek usually runs red

The Mayne River and Gum Creek can produce useful local flooding

The Mayne River always runs red and fast because it comes off hard country. It blocks up the Diamantina every 5-10 years

Middle Creek runs fast, it can flow clear but is usually muddy

Lake Billyer on Brighton Downs fills in most years - generally from Gum Creek but local flooding from the Mayne River can top it up

"How Often" are flood rains received? Proportion (%) of years that rainfall in 24hrs is at least

100 mm	75 mm	50 mm	Location
2	8	25	Mooraberree
2	6	16	Durrie
1	10	19	Betoota

Rain on the hard country at Palparara runs the western side of Farras's creek

If Farras Creek holds up at 2.6 feet (0.8 m) for 2 weeks at Curawilla Crossing, the Farras water will give good flooding from Mooraberree south including Roseberth and Pandie Pandie

If Farras Creek flows before the Diamantina, it will block the river thereby slowing and spreading the flow

Farras creek runs fast and mostly muddy

If Farras Creek & the Diamantina run together, it leads to good flood

The Eastern channel of the Diamantina doesn't run until there is approx 9.5 feet (2.9 m) at the Monkira house. 13 feet (4.0 m) will cut the Kingadurka Rd on Monkira (this is a good flood on Monkira)

Water heights need to reach 11.4 feet (3.5 m) to flood out to the DP&F site on Mooraberree (shown above)

"How Often" are flood rains received? Proportion (%) of years that rainfall in 24hrs is at least

100 mm	75 mm	50 mm	Location
2	8	25	Mooraberree
2	6	16	Durrie
1	10	19	Betoota

Some recent floods at Durrie

The 2001 Flood - ran clear water because vegetation from the 2000 flood had filtered out the sediments by the time water reached Durrie. The clear water killed the bluebush on Durrie and Monkira (It is coming back now)

The 2004 Flood - Was a really fast flood. It went from 0-9 feet (0-2.7 m) at Durrie in 8 hours and ran hot water which was useless for feed growth. However, upstream at Brighton Downs the 2004 flood was very good.

Flood times between Davenport Downs and Goyder Lagoon

- 3-4 days from Davenport to Monkira
- 1-2 days from Monkira to Durrie
- 7-10 days from Durrie to Birdsville & Roseberth
- 2-3 days from Birdsville to Pandie Pandie
- 7-8 Days from Pandie Pandie to Goyder Lagoon

Gutters (or relicult channels) help distribute floodwaters out from the main channels

Large and moderate sized channels distribute the water during initial flooding

Cow veld and other herbage often dominates occasionally flooded plains following summer floods in the Channel Country

Channel Country native sorghum, pepper grass and bluebush pasture, circa 1947

Less frequently flooded ridges provide refuge and feed during flooding

Channel Country native sorghum pasture, May 2000

When do flood heights get reported? BoM flood height levels for gauging stations in the Diamantina River system.

River Station	Flood Height	First Report Height	Minor Flood Level	Moderate Flood Level	Major Flood Level
Elderslie	1.5	1.6 (C)	1.5	2.5	3.0
Aspley	1.5		2.0	2.5	3.0
Aldingham	1.0		1.5	1.7	2.0
Oondooroo	1.0	0.6 (C)	2.0	3.0	4.0
Winton	1.3	1.3 (B)	1.5	2.0	3.5
Tulmur	4.0		5.0	7.0	8.0
Diamantina Lakes	0.3	0.0 (X)	1.0	3.0	5.0
Monkira	2.0	2.6 (A)	2.6	4.0	5.0
Birdsville	2.0	4.0 (A)	4.0	6.0	8.0

All heights are in metres on flood gauges. (A) = Approaches (B) = Bridge (C) = Causeway (X) = Crossing

For more information, queries or corrections, please contact Longreach DP&F (07) 4658 4400 Landsborough Highway, Longreach PO Box 519, Longreach, Qld 4730

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