

Autumn clover establishment and forage budgeting

Clover planting season!

After recent substantial rain in the catchment, the soil is charged with moisture, and while the temperature is still warm we all need to be out on our creekflats spreading white clover seed. Now is the perfect time for establishing white clover to be ready in time for winter and spring.



White clover as part of a healthy, diverse pasture.

Forage budgeting

For the past few years, the Mary Valley has been subjected to unusually late summer rainfall and protracted spring dry spells, often with punishing north-westerlies drying out pasture. This combination has highlighted the need for clever planning at this time of year to provide adequate feed for livestock to get them through to the summer storm season. In our neck of the woods, we typically experience a dry season over winter-spring, resulting in very slow, to no, pasture growth. Therefore, by May what pasture you have standing in the paddock is what has to see you through to Summer. So, much like making sure we don't spend our paycheque before we get our next one, it is wise to budget feed that stock has access to early in the season (May is the right time) rather than being caught out later in the year with not enough feed and too many cattle. Getting the forage budget right avoids the paddocks being overgrazed during this time, which if occurs often, they become less productive and rundown, and much harder to restore back to health. Additionally, by calculating feed requirements you can save the expense of having to buy in feed especially at a time when everyone else is likely looking for it too.

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Calculating a forage budget (measured in number of days of available feed) for your property is pretty straight forward. There are two key numbers you need to consider carefully:

1. Your herd size you plan to carry through the winter dry season (calculated in adult equivalents).
2. When you anticipate the end of the dry winter season will occur (measured in number of days), ie the number of days of grazing over the winter dry season when pastures are virtually not growing.

To start with you need to calculate your herd size in how many "adult equivalents" (AE) you plan to carryover the dry season. AE is a way to convert your different aged herd into one universal system to estimate your herd size. This is important for determining stocking rates and pasture consumption requirements.



Assessing pasture by checking out species and coverage.

One adult equivalent = 450 kg, which is the equivalent of a 2 ½ year old cow/steer. That AE has to consume at least 11kg/day of dry matter per day to survive.

For instance, you may have a breeder herd of 30 cows (at 450kg each, so they are 30 adult equivalents); 20 weaners (135kg each, (135 kg divided by 450 kg equals 6 adult equivalents in weaners) and a bull (900kg; or 2 adult equivalents). In total you plan to carry 30 cows (30 adult equivalents) + 20 weaners (6 adult equivalents) and a bull (2 adult equivalents); in total 38 adult equivalents.

The next step is how many days of pasture feed do you need to forward budget for your herd size over the dry season. To do this you need to anticipate the start of the next pasture growing season (not so easy to determine, but a standard is 150-180 days – from 1st May until 31st October). Lets say 180 days –

from 1st May until the start of November ie. you will need 180 days of feed for your herd over the dry season.

Now with your herd size converted to AEs and the number of days of grazing you can calculate how much feed is required until the break of the season eg. $38 \text{ AE} \times 11\text{kg/day} \times 180 \text{ days} = 75,240 \text{ kg of feed needed}$.

Now, how much pasture do you actually have in the paddocks, and is there actually enough? It's staggering to think that your herd will need more than 75 tonnes of feed to simply function over the dry season. There is little pasture growth during this time, so what's in the paddock now is what you need until the pastures start up again.

Determining how much pasture (in kg/Ha) you have in the paddock is a little more hands-on, requiring cutting and weighing quadrants of pasture (1 square metre of pasture), and then drying them to work out how much dry matter or feed will be available at the end of the season. For instance after cutting 5 to 10 representative 1 square metre quadrants across your 20ha paddock you have calculated there is 4,000kg/ha of pasture in the paddock (eg $20\text{ha} \times 4,000\text{kg} = 80,000 \text{ kg of dry matter}$).

However, you don't want your stock to eat every bit of pasture in the paddock, so we aim to only consume 30-40% of the standing pasture (called safe utilisation rate); leaving behind 60% of the pasture to enable the pasture to quickly return to vigorous growth when Spring arrives. Using the 80,000kg in the 20ha paddock, and only consuming 30% of the pasture results in ~24,000kg of available pasture. And remember we calculated your breeder herd needs at least 75,240kg of pasture to survive over the dry season. So you will need at least 3 paddocks ($24,000 \text{ kg of available pasture} \times 3 \text{ paddocks} = 72,000 \text{ kg of pasture}$) to see you through the winter dry season.

Another factor is how much moisture is in the feed. Pasture can be up to 90% moisture in Autumn – therefore only 10% dry matter. That means the cattle have to eat a lot of feed to get their daily ration of 11kg/day of dry matter. To remove the moisture and understand how much 'dry matter' is in the paddock we need to slowly dry the cut pasture in an oven at very low temperature to remove the moisture. Once dried we can calculate how much dry matter is actually available.

In summary, we need to make sure enough pasture and ground cover is left in the paddocks at the end of the dry season to enable the pasture to recover easily when Summer storms return and to avoid erosion and runoff that can lead to poor downstream water quality. Short, rundown pastures respond to rain much slower than vigorous, bulkier, resilient pastures.



Participants on a pasture field walk learning how to assess their pastures and improve them.



Kangaroo grass (Themeda triandra) spikelets. Harry Rose from South West Rocks, Australia. Creative Commons Attribution 2.0.

3P pasture grasses

You may have heard people muttering something about "3P" grasses out in the paddock and wondered what they are on about. Put simply, grasses in Queensland are rated according to how many "Ps" they score, the more "Ps" the better the quality of grass. But what does "P" stand for?

3P grasses are those that are:

1. Palatable
2. Perennial
3. Productive

So for instance a common native grass found in the Mary River catchment is kangaroo grass (*Themeda triandra*).

Kangaroo grass is very palatable (we know this because stock will eat Kangaroo grass and leave other less desirable species alone), it is perennial (it doesn't die out in summer or winter), and it is productive (stock gain weight feeding on natural kangaroo grass pastures). Therefore Kangaroo grass is considered a "3P", or desirable, grass species.

The "P" classification can be assessed for native and naturalised grass species, for instance native species such as black spear grass and forest bluegrass are considered "3P" while naturalised grass species such as Rhodes grass and common paspalum also score "3Ps".



Rhodes grass stolon: Macleay Grass Man, CC BY 2.0 <<https://creativecommons.org/licenses/by/2.0/>>, via Wikimedia Commons

The "P" classification of grasses can be a little subjective though. For instance some graziers may classify barbwire grass (a common native grass in the catchment) as "2P" (palatable & perennial), while others may rank this grass as only 1P (perennial). This is entirely acceptable and is generally based on observation and experience.

Maintaining a high density of 3P perennial grasses on your property is the key to good land condition. 3P perennial grasses have the added advantage of being deep rooted and

are therefore more resilient to extreme climatic conditions eg. droughts. Maintaining good pastures dominated by 3P grasses has the added benefit of maintaining good soil carbon reserves. Whereas heavy utilisation of pastures can greatly reduce soil carbon reserves and pasture resilience to drought.

Once a grazing landholder can identify and assess their grasses according to the “P” system, they can objectively assess the condition of their pastures, and over time monitor the effect of implementing best land management practices eg. forage budgeting in autumn or wet season spelling in summer.

3P grasses include: Katambora Rhodes, kikuyu, some Setarias, pangola, star grasses, common paspalum, and native species such as kangaroo grass, forest bluegrass and black spear grass.



Pangola (Digitaria eriantha): Harry Rose from Dungog, Australia, CC BY 2.0 <<https://creativecommons.org/licenses/by/2.0>>, via Wikimedia Commons

Meet the team: Kath Bennett

Kath has recently joined the Upper Mary Rivercare project team. Kath is currently wrapping up a Flood Recovery lungfish habitat project, and you will see more of her in the new financial year assisting Alana with on-ground projects. She enjoys engaging with people involved in the Upper Mary Rivercare program and learning about their journey; how they are improving their understanding and making positive changes to their properties which is also helping to improve the catchment.



Kath (left) and Sarah during the 2024 MRCCC Catchment Crawl.

Citizen science: February frogging

Gathering information about our flora and fauna for better understanding and to help guide our decisions, is a never-ending action. The Find a Frog in February (FFF) citizen science program is just a small window in time for people to get excited over frogs but, keeping an eye on our frogs at all times is essential.

FFF has been providing lots of opportunities for people to learn more about frogs through workshops, surveys and school night outings. One event was held with the students from Gympie East State School.

For teachers, the start of the year is a frantic time and taking on a night-time outing in the first few weeks is a demonstration of great dedication. Karen Blackburn, with the help of team FFF from the Mary River Catchment Coordinating Committee (MRCCC) had eight students come together to share frog stories with Ollie Scully (MRCCC) and to venture out into the full-moon night to see what frogs were sharing their neighbourhood.

They found a Scarlet-sided banjo frog (*Limnodynastes grayi*), a couple of Stony creek frogs (*Litoria wilcoxii*) and, of course, the resident of the buildings; a very large Green treefrog (*L. caerulea*)! Gympie east SS have been monitoring Deep Creek and a neighbouring farm dam since 2021 and have recorded eight species including a one-time hearing of the vulnerable Cascade treefrog (*L. pearsoniana*).

Like to know more about frogs in our area? Hop to:

MRCCC Find A Frog in February web page at:

<https://mrccc.org.au/frog-in-february/>; and

Queensland Frog Society at: <https://www.qldfrogs.asn.au>



Gympie East State School students out for frogging adventure in February. Photo by Alana Ebert (MRCCC)



Scarlet-sided banjo frog (Limnodynastes grayi).



Some of the water quality challenges recently at the Goomong Offtake: recent rains result in lots of sediment in the river, putting additional strain on the intake and treatment infrastructure.

What exactly is Upper Mary Rivercare and Seqwater's mission?

Ultimately, Upper Mary Rivercare is about working together to protect our drinking water quality.

Seqwater, through MRCCC, works with landholders and communities to protect and enhance the quality of dams, tributaries and the River within the Mary River catchment. These source waters make up our bulk water drinking supplies, and the better the quality of water going into the treatment plants, the more efficiently and cost-effectively the plants can operate to turn source water into clean and safe drinking water for our community.

For instance, Noosa's drinking water comes from the Lake Macdonald dam which is fed in part by the Mary River via the Goomong Offtake near Tuchekoi. This water is drawn into Seqwater's Noosa Treatment Plant for treatment.

In the upper Mary, small towns are serviced by "off-grid" plants drawing water from nearby waterways. For example, Kenilworth (Mary River), Imbil (Yabba Creek), Kandanga (Kandanga Creek) and Amamoor (Amamoor Creek).

At the water treatment plants, contaminants are removed from the water to turn it into clean, safe and sustainable drinking water for the local community.

Everyone, from Seqwater and catchment partners to local community, has an important role to play in protecting drinking water quality.

Seqwater's Source Protection team is focused on protecting South East Queensland's source water catchments. This includes

rivers, creeks and dams, and the public and privately-owned land surrounding these natural assets, to help ensure the delivery of clean, safe and reliable drinking water to more than 3.8 million people.

A happy consequence of protecting source water is the enhancement and protection of important local native flora and fauna and the ecosystems that support them. Programs and projects also support landholders to apply best practice methods on their properties, improving outcomes for them, their livestock, their land, their livelihoods and their lifestyles.

By proactively working together to manage and reduce contaminants in our waterways, such as agriculture products and sediment from erosion, we can better protect the quality and health of the region's catchment and source water.



A range of representatives from Landcare and Catchment groups across southeast Queensland that work on the source protection program with Seqwater on a River Walk event. The purpose of the River Walk event was to look at the amazing work MRCCC have done around the Kenilworth area (dairy improvement and erosion control), working with landholders to improve water quality delivered to the Kenilworth Water Treatment Plant.

Upper Mary Rivercare Landholders: Alice and Richard Bassett

Alice and Richard run a small breeder herd of Belmont Red beef cattle on their 24-hectare property on Obi Obi Creek. They are passionate about caring for their property and enhancing their natural environment, including an extensive natural wetland area on their property.

They are looking forward to implementing projects under their approved Five-Year Water Quality Plan, including installing additional water troughs, paddock fencing and shade trees to improve pasture utilisation across their property and encouraging their stock upslope.



Grazing fun fact ...

Did you know that adult cattle have no teeth in their upper front jaw?

They use their tongues to wrap around the plants and tear them off to eat.

This is why it's harder for them to manage short pastures.

2025: water water everywhere

What a difference two weeks - or even a day - can make. Below are two photos from the same site only two weeks apart at Josh Loweke's property on Obi Obi Creek. Between 15 and 28 April, the catchment above the Creek received over 230 mm of rain, most of that on a single day - Friday 25th (200 mm). Reportedly, during that particular storm event, Obi Obi Creek levels went up three metres in just two hours. Imagine the incredible power of the water flow and subsequent impacts all along the creek and into the mighty Mary River!



Before: photo taken on 15 April 2025



After: photo taken on 28 April 2025

Another photo shows a portion of the Obi Obi Creek bank with an eroded bare section adjacent to established riparian vegetation, where you can see the difference the trees, shrubs and groundcovers make. Seqwater's Rivercare projects are designed to support our landholders to improve the river and tributaries that border their properties, mitigate the impacts of flooding and degradation, and ultimately deliver better quality outcomes for our drinking water supplies.



Bank protected with riparian vegetation: (photo taken in April 2025)



Exposed bank on same part of creek: (photo taken in April 2025)

If you have your own photos and stories of recent rain and flooding impacts to your own properties, we'd love to hear from you. Contact Kym at kym.burnell-jones@mrccc.org.au. We would love to create a "flood impact dossier" to document real-life impacts for our landholders and the waterways we all cherish.

Upcoming workshops, events and activities

Winter-spring 2025 proposed program TBC

- Upper Mary Rivercare Intro Workshop, Moy Pocket **TBC**
- June 3: Dairy Australia dairy effluent management workshop
- Upper Mary Rivercare fencing workshop **TBC**
- July 12: Mary River Festival, Kandanga
- August 22-24 Cooloola Bioblitz, Rainbow Beach
- October 8-9: Mary River & Tributaries Catchment Crawl

Note: dates and details to be confirmed

The Upper Mary Rivercare Program is delivered by the Mary River Catchment Coordinating Committee with funding support from Seqwater. Visit www.mrccc.org.au/projects/upper-mary-rivercare-program/ for more information on the Program.

Dates with Mary 2025

Your guide to What's on in the Mary River catchment. Brought to you by the MRCCC!



May • Tuesday 13th

8.45 am to 12.30 pm

MRCCC General Meeting

Guest Speaker,
Phil Moran, Noosa
Landcare

Sunshine Coast Uni Lecture Theatre,
Gympie campus. **Botanical
specialist**, water weed guru and
all round good guy, Phil will share
insights into his past 25 years working
with Noosa Landcare

RSVP to 07 5482 4766

includes light morning tea and
lunch

May • 19th-25th

National Volunteer Week

Become a citizen scientist
and learn more about the
natural world.

Contact the MRCCC if you are
interested in being a **Waterwatch
volunteer** and monitor water
quality in your local waterway. Full
training provided.

Contact the MRCCC for details -
07 5482 4766

Or send an email to:
admin@mrccc.org.au

May • Saturday 24th

from 10:00 AM

MRCCC Bug Club

For bug enthusiasts young
and old.

Kidd Bridge Weir, Mary River,
Gympie. Learn to **identify water
bugs** and collect valuable data on
the **health of the river**

RSVP to 07 5482 4766

June • Thursday 5th

World Environment Day

The focus this year is putting
an end to global plastic
pollution

Count how many disposable plastic
items you have in your home. Work
out what you can do to **reduce/re-
use/recycle your waste!**



June • Tuesday 24th

8.45 am to 12.30 pm

MRCCC General Meeting

Guest Speaker, Associate
Professor **Andrew Olds**

**Sunshine Coast Uni, Gympie
campus.** Andrew will share info
on his research into the Mary River
paleochannel in Hervey Bay and fish
and fish habitats along the Fraser
Coast and Great Sandy Strait

RSVP to 07 5482 4766

includes light morning tea and
lunch

July • Saturday 12th

Mary River Festival

Kandanga • 9 am to 4 pm

**Live music, entertainment, guest
speakers, reptile show, displays,
local markets, fabulous food,
cat's claw weaving** and more.
Stallholders apply on line.

www.maryriverfestival.org.au

August • Wednesday 6th

8.45 am to 12.30 pm

MRCCC General Meeting

Guest Speakers, **Mariana
and Hamish** from Charles
Darwin University

Here's a rare opportunity to hear
about research into the Mary's
internationally famous, critically
endangered **bum breathing turtle**
and the threats the species faces to
continue to survive in the wild.

Venue to be confirmed.

Bookings essential.

RSVP to 07 5482 4766

includes light morning tea and
lunch

August • Friday 22nd to Sunday 24th

**Cooloola Bioblitz,
Rainbow Beach** and
surrounds and **STEAMzone
Twilight Science Market**

Discover the biodiversity of
the Cooloola Coast with expert
scientists/specialists in this fabulous
event hosted by Cooloola Coastcare

Booking essential

as places are limited.

www.cooloolacoastcare.org.au

Did you know? The MRCCC offers free dam, bore or creek water testing which can help you determine if your water quality is suitable for agricultural or horticultural purposes. Bring a sterilised 500 ml sample to the Resource Centre at 25 Stewart Terrace, Gympie during business hours to be tested. Our environmental scientists can also help with plant and weed identification, and also provide information about appropriate weed control for species likes Cat's Claw Creeper vine!