PASTURE DIVERSITY

FACT SHEET

Bellinger Landcare Inc.

INCREASING PASTURE DIVERSITY: WHAT AND WHY?

Species Diversity

The golden rule is 'the more the better'. In adverse conditions such as drought and flood, at least some species may cope, allowing for continual biomass production. For example, most grasses have fibrous root systems, whilst herbaceous plants often have tap roots which can access water unavailable to the grasses.

Even in mild years, having a range of species in a pasture means that the soil will be well covered throughout the seasons, promoting infiltration and reducing run-off and soil erosion.

A diverse pasture increases the amount and type of nutrients available to stock. Different plants with different root systems, at different depths, uptake a wide variety of different nutrients at different times. Stock will tend to seek out plants containing the minerals or nutrients they need, potentially allowing some degree of self-medication. Because grasses which are setting seed actively reduce their palatability to stock, having a mixture of species flowering at different times increases overall palatability, and reduces the risk of overgrazing certain native grasses.

Increasing native grass species in pasture provides habitat for native invertebrates, and the birds who both feed on them, and disperse seed. This helps maintain landscape connectivity and productivity.

In our Shire, Kangaroo Grass (*Themeda triandra),* Wallaby Grasses *(Rytidosperma* species), Speargrasses *(Austrostipa* species), and some Lovegrasses *(Eragrostis species)* are just a few of the native perennial grasses which can also be of value to livestock.

Commercial native grass seed is readily available, but expensive. Identifying species already present (easiest when they are flowering) and managing them appropriately can help increase their abundance. The various NSW *Grasses of…* identification books by Harry and Carol Rose are excellent starting points for management advice.

Genetic Diversity Within Species

Genetic diversity within the most common pasture species has declined through the continual purchase and sowing of commercial seed, rather than saving seed on farm. Commercial seed has some advantages, but a lack of genetic variability in a population of pasture grasses greatly decreases their resilience to adverse factors. Commercial hybrid seed is not only genetically limited, but it must also be purchased every year.

Kangaroo Grass - (Wikimedia)

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Structural Diversity

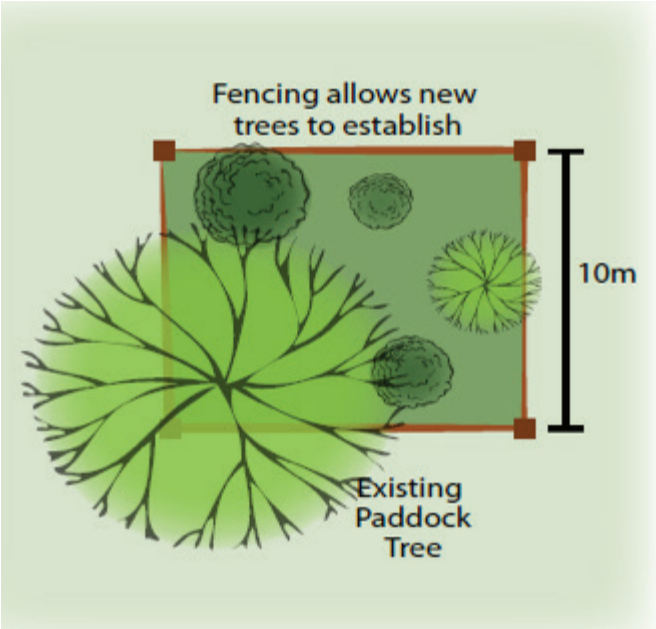
Long, rank grass can be a fire hazard, and is generally less palatable to stock, but maintaining strips or patches which are allowed to complete their full lifecycle provides habitat and food for invertebrates and birds, as well as a seed stock of non-commercially produced species.

Invertebrates represent a vital part of our ecosystem. For example, many spiders require standing plant material to build webs, and many spiders and predatory insects supplement their diets from the pollen of pasture plants. When entire pastures are constantly slashed, the loss of structure results in loss of habitat for invertebrate predators, which increases the pasture's susceptibility to an explosion of undesirable insects.

Our Shire experiences extremes of both heat and rainfall. In both cases the provision of significant tree canopy in pastures provides shelter for livestock, enhancing their quality of life, and productivity. Trees create habitat corridors allowing native species to cross otherwise highly exposed pastures. These corridors can be further increased by fencing and the inclusion of mid and understory plants, some of which are essential to allow small birds and mammals to traverse landscapes. Use of existing fence-lines and riparian areas can reduce the costs of fencing, and grants are occasionally available for landholders seeking to enhance biodiversity corridors with revegetation plantings. Fencing or caging also enables native canopy seedlings to emerge, which is essential to allow for the ongoing replacement of existing mature trees.

INCREASING PASTURE DIVERSITY: How?

There is no silver bullet. Bellinger Landcare Incorporated is therefore developing a regenerative farming network in the Shire, in collaboration with others. Fact sheets, workshops, farm visits, case studies and peer to peer learning are key components, and we will seek ways to capture the lessons learned and the best resources on our website, bellingerlandcare.org.au. You can also find out how to join the network, and what workshops are upcoming. We will also seek to develop a list of contractors in our area who can advise on the best combination of mixed-seed sowing, mulching and slashing, strategic herbicide use, fencing and caging, as well as how to best manage grazing.



Grazing

Set stocking (allowing a fixed number of animals to range over a pasture) reduces overall diversity by allowing livestock time to overgraze their favourite plants. Rotational grazing across several paddocks reduces this dynamic, allowing grasses time to re-grow, set seed and therefore persist. More complex planned grazing features rapid stock rotation at relatively high densities through a large number of paddocks, which allows for much longer rest periods for pasture. This was explored in our recent workshops, and is described in our *Planned Grazing* fact-sheet.

This fact sheet was produced as part of Landcare's *Building the Bellingen Shire Regenerative Farming Network* project, with support from the Bellingen Shire Bushfire Recovery and Resilience Program. The above figure appears in *A guide to species selection for revegetation projects in the Coffs Harbour Local Government Area* (2015).
There is a link at bellingerlandcare.org.au.

BELLINGEN SHIRE COUNCIL