



Climate change adaptation in the Midlands
Preserving our remaining native grasslands

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Township Lagoon Nature Reserve – Photo: Graham Green

Native grasslands are one of our most unique and species-rich vegetation communities. A prime example is Township Lagoon Nature Reserve near Tunbridge, although just 16 hectares, it has the highest concentration of threatened plant species in Tasmania with 22 listed species. The reserve also protects a natural salt lake, one of only four in Tasmania.

We are fortunate that this site has survived as it provides a window into the original grassland flora of the Southern Midlands and hence is a highly significant site for nature conservation.

Township Lagoon Nature Reserve is dominated by kangaroo grass and is known as a *Themeda* grassland. This type of grassland community now covers just 0.14% of the Southern Midlands land area. Lowland native grasslands are considered so rare, and of such high significance biologically, that they are now protected under the Environmental Protection & Biodiversity Conservation Act 1999 as critically endangered vegetation communities.

When we woke up to the fact that natural grasslands are very biodiverse and important habitat for many species, effort increased to protect what was left. The Tunbridge Lagoon grassland remnant was proclaimed as a Nature Reserve in 1991 and is also listed on the Register of the National Estate.

The peak display of wildflowers at the reserve is October to November. At other times of the year the flora diversity values at the site are not obvious and it's easy to see why native grasslands were once dismissed as having little value. The fact that a rubbish tip consumed the grassland adjacent to the Nature Reserve is a case in point.



Threatened species - grassland daisies at the Township Lagoon Nature Reserve. Photo: Graham Green

Our vulnerable grassland remnants are already hanging by a thread due to their limited extent and vulnerability to weed invasion. Climate change is the next hammer blow. The thermal tolerance of some species will be exceeded and more frequent dry periods will likely see some species cease to exist locally. Changes in seasonal conditions gives rise to potential for mismatch of flowering time with presence of pollinators due to altered lifecycles and altered reproduction rates. There will be challenges to maintain grasslands as functioning ecological communities as elements begin to disappear.

Due to surrounding land use constraints our grassland remnants are confined to where they are, any dispersed seed has no prospect of survival in a cultivated landscape. This is where the work of the Tasmanian Seed Conservation Centre (TSCC) is crucial. As part of the international Millennium Seed Bank Project, the centre has undertaken 121 collections of threatened species from the midlands, with a strong focus on grassland flora. The aim of the TSCC is to collect seed from at least 50 individuals and to save 10 000 – 20 000 seeds per population. This provides a form of insurance policy for our grassland genetic diversity whereby

a revegetation project utilising the stored seed may be undertaken if ever necessary.

The tricky element for the Township Lagoon grassland is its endangered orchids. Orchid conservation is very specialised and seed alone is not enough. Orchids will not re-establish in the absence of a specific fungal associate that they depend upon. A team of volunteer orchid specialists works closely with the TSCC, their sole focus is to maximise the chances of our unique flora surviving into the future.

On private land, the benefit of native grasses on farms is now gaining wider appreciation. Kangaroo grass is a deep-rooted summer-active perennial grass with high drought tolerance. It provides potential for year-round grazing options when combined with perennial grasses that grow more actively in the cooler seasons. Actively encouraging native grassland species back into grazing systems makes sense, and this can be done relatively simply by eliminating fertiliser application and shifting to grazing rotations.

Maintaining ground cover is one of the big challenges for midlands farmers, so choosing management that maintains hardy, nutritious grasses such as kangaroo grass is a wise climate change adaptation decision. But grasslands are not just about grasses, they are vibrant biodiverse ecosystems inclusive of herbs, lilies and wildflowers, that can be the engine rooms of local ecological function if allowed to flourish. On farm havens for a diversity of insects and bees is crucial if there are crops that require pollination.

One of the great possibilities for restoration of grasslands lies with a vegetation community known as 'lowland grassland complex', which covers about 4.5% of the Southern Midlands land area. This vegetation community is a hybrid of native grassland flora, introduced grasses and flat weeds. Kangaroo grass presence is a good indicator that other components of healthy grassland communities will be present. Restoring a healthy grassland community can commence from this point if the fundamentals are still present and there is willingness on the farmer's behalf.

Local landowner Nan Bray began a series of projects, starting back in 2007, to enhance grassland biodiversity on her property Lemon Hill, south of Oatlands. An ambitious plan to protect a strip several hundred metres wide along her highway boundary was undertaken in stages. She particularly wanted to protect a rocky slope that still had a wide diversity of native plants, including endangered orchids and other grassland plants.

"I discovered the tiny greenhood orchid (the endangered *Pterostylis zeigeleri*) as I was wandering through the area looking for ewes and lambs one October, and was entranced. As I realised that the area had never been ploughed, unlike most of the rest of my property, I started keeping a close eye out for other shy natives, like the cut-leaf daisy, new holland daisies, hill daisies, early nancys and the like. All of these grow in full view of the main highway."



Tiny endangered greenhood orchid of Midlands grassland. Photo: Nan Bray

“I also realised that by restricting grazing in the area I was allowing my remnant she-oak and blackwood groves to regenerate. There are now literally hundreds of young trees that have seeded naturally—no work on my part, other than fencing the area to allow me to control grazing pressure.”

“I have 10 biodiversity reserves on my property. Most have trees, shrubs, and smaller plants and grasses that were planted under various grant schemes. None are “lock-out” reserves—I allow grazing in all of them, or will allow grazing when the trees are sufficiently mature to stand up to browsing.”

“The benefits I see accruing are key to my production system—enhanced nutrition and shelter for my sheep and better ground cover. They are also aesthetic: over the years it has become a property that I truly enjoy walking around, and a basis for marketing the knitting yarn that I produce as ethical and sustainable.

For our landscape to survive climate change we will need the toughness, genetic diversity and proven resilience to change demonstrated over millennia by our native grassland flora. Now, more than ever, we need farmers willing to actively manage their land to encourage this flora to prosper.

Graham Green