

Parliament of Victoria: Inquiry into Ecosystem Decline in Victoria

Dr Megan O'Shea

Please consider this submission to the inquiry. Except where stated, all comments are relevant to the EPBC listed community *Natural Temperate Grassland of the Victorian Volcanic Plain* (critically endangered) and FFG listed community *Western (Basalt) Plains*, henceforth referred to as 'native grasslands'.

Qualifications and Expertise

I am a practicing grassland ecologist with a Bachelor of Applied Science (Environmental Management) (honours) and a PhD by way of a research thesis titled *Methods for Assessment and Techniques for Management of Striped Legless Lizard Populations in South-eastern Australia*.

For 10 years I worked at Victoria University (VU) as a tenured lecturer in the Bachelor of Applied Science course teaching: zoology, conservation biology and environmental restoration subjects; and supervising student research projects, including honours and PhD students. I continue on at VU as an Honorary Research Fellow, where I am working on several projects, including:

- Two separate studies on the conservation biology of Spiny Rice-flower
- Projects such as the Iramoo Green Lab and *Seeds from School* where the focus is on community education and engagement around grassland conservation in the west of Melbourne
- A collaborative project with Brimbank City Council titled *Growing the Population of Striped Legless Lizards at Paramount Grasslands*

I am a Category B member of the Victoria University Animal Ethics Committee.

I am a member of the Field Naturalists Club of Victoria, the Indigenous Flora and Fauna Association, the Grassy Plains Network, the Friends of Kororoit Creek and the Friends of Iramoo. I am the technical advisor on the Cairnlea Conservation Reserves Committee of Management. I regularly attend *Pimelea spinescens* Recovery Team Meetings.

I grew up and still live in the west of Melbourne, where I have spent an inordinate amount of volunteer time caring for the local natural environment and encouraging other people within my local community to care.

My work on the Striped Legless Lizard and grassland ecology spans more than two decades.

The Ecosystem

The Natural Temperate Grasslands of the Victorian Volcanic Plain (NTGVVP) are listed by the Commonwealth as critically endangered. It is estimated that less than 2% of their former extent remains, however this figure was first estimated in the early 1990's and should be revised given that there has been substantial loss of native grassland since that period. The Collaborative Australian Protected Area Database (CAPAD) 2018 indicates that within the National Reserve System there is a 0.01 – 5% protection level for the Victorian Volcanic Plain bioregion and that priority should be given to bioregions with less than 10% protected (Commonwealth of Australia, 2009).

Causes of Decline

The causes of grassland ecosystem decline in Victoria are well documented (see Gott *et al.*, 2015) and include:

- Destruction for agricultural intensification
- Destruction for urban development and associated infrastructure
- Preferential grazing of palatable native herbs by introduced stock
- Inappropriate management regimes (e.g. heavy grazing, frequent slashing)
- Inappropriate biomass management (too frequent or infrequent fire regimes)
- Addition of nutrient
- Competition from introduced plants
- Predation of native fauna by introduced cats and foxes

The Fundamental Problem

The fundamental problem for this ecosystem is destruction for agricultural intensification and urban development – once destroyed, these grasslands cannot be faithfully recreated. The solution to destruction is clear: beginning immediately, **no further clearance of native grassland should be permitted**, except in the most extreme of circumstances.

In the urban context, remnant native grasslands are sometimes undervalued (and therefore not protected) for a range of reasons, including that the remnants are small, poorly connected within the landscape, degraded or too resource intensive to manage. However, as indicated in the DSEWPaC (2011) publication *Nationally Threatened Ecological Communities of the Victorian Volcanic Plain: Natural Temperate Grassland & Grassy Eucalypt Woodland*, most known remnants are small – under 10 hectares in size. Thus, because there are very few unprotected large remnants remaining, it is now important to look more carefully to the role and value of smaller remnants and work towards their permanent protection, management and restoration.

In support of the case for protecting urban grasslands, it has been shown that collectively, small grassland remnants make the greatest contribution to floristic diversity. Through the study of 68 urban grassland conservation reserves, Kendal *et al.* (2017) reported that 87% of all native species were found in small reserves <10 ha in size and that more small reserves contained more species than few large reserves of comparable area. Small urban reserves also provide valuable habitat for threatened fauna such as the Striped Legless Lizard *Delma impar*. For example, a population of at least 86 individual Striped Legless Lizards (including recent offspring) was recorded at a remnant urban grassland that was less than two hectares in size and had been isolated for at least three decades (O'Shea, 2017). It is highly likely that there are other examples of small grasslands that continue to support high density populations of this species (and possibly other grassland fauna), despite being isolated and surrounded by urban infrastructure for decades. A recent VCAT determination (P1535/2019) found that there was value in retaining a threatened breeding population of Striped Legless Lizards 'even if it has limited connectivity with other local populations.'

Additionally, degraded grasslands should not be discounted or abandoned, as indicated by the above VCAT determination that states that deterioration in grassland vegetation condition was 'not a reason of itself to allow removal.' There are numerous examples of native grasslands that were considered to be almost beyond repair but have been successfully restored. An example is the 4 ha Featherheads Wildflower Grassland in Cairnlea that in 2008 had a high cover of the introduced Serrated Tussock. After a couple of years of intensive management and ongoing follow-up weed control, Featherheads is now a stunning example. It has a high diversity of remnant native wildflowers and some species of flora have been successfully re-introduced. Associated with the control of the Serrated Tussock, a remnant population of Sun Orchid was discovered (one of the few populations in urban grasslands) and the site is now in such good condition that a translocation program for the threatened Small Golden Moths Orchid has commenced there.

The Process of Evaluation

With the exception of the Melbourne Strategic Assessment (MSA), the current process for the removal of native grassland vegetation is assessed on a case-by-case basis through the various jurisdictions. This places a huge burden on local government, community groups and individuals who frequently make extensive submissions to oppose the destruction of high-quality remnants – often without success.

Under the MSA program, the Victorian Government made commitments to improve conservation outcomes for native grasslands, through the establishment of a 15,000 ha grassland reserve (the Western Grassland Reserve) by 2020. As indicated by the Victorian Auditor-General (VAGO, 2020), the MSA has not met this target, resulting in ongoing threats of degradation that pose significant risks to the ecological values within the Western Grasslands Reserves. Clearly, this has not been a successful model.

In keeping with the above point that no further clearance of native grassland should be permitted, **all remnant grasslands should be clearly identified and permanently protected.** A limited and clearly pre-defined list of exceptional circumstances may be required.

Grassland Degradation and Management

Native grasslands are dynamic systems that have evolved with periodic natural disturbances such as droughts, floods, soil disturbance from small mammals, grazing and fire. Such disturbances are vital to the maintenance of healthy grassland. European colonisation has introduced a range of novel disturbance factors, such as invasive weeds, introduced herbivores at high stocking rates, suppression of fire and a fragmented landscape which inhibits recolonization by native plants and animals. In the current context, grassland management needs to be nuanced in such a way as to take into account the dynamic requirements of native grasslands whilst limiting the negative impacts of these novel factors.

In Victoria, grassland management is undertaken by a range of government agencies, private landholders and community groups. There are some sectors that are better at this than others. For example, local councils tend to achieve reasonably good outcomes for their native grasslands, whereas some State managed reserves are in poor or declining condition, and the results are mixed amongst private landholders.

As an example, the State-managed Derrimut Grassland Reserve is one of the first grasslands in Victoria that was protected for its flora and fauna values. Whilst it maintains areas with significant floristic values, there are large tracts that are infested with the invasive weed Chilean Needle Grass and very few resources for its management. Furthermore, there appears to be very little effort to understand the impacts of management. The reserve was once considered to support a significant population of Striped Legless Lizards but there was no monitoring/assessment of the population between 1995 and 2015. In 2015, a study recorded only 9 Striped Legless Lizard observations at an estimated density of 5 individuals per hectare. In contrast, similar surveys at nearby grasslands (various tenures) recorded up to 82 individuals at densities as high as 156 individuals per hectare (O'Shea, 2016). It is unclear if there has actually been a decline in the Striped Legless Lizard population at Derrimut Grassland Reserve or what the potential causes of the suspected decline may be, however it is concerning that there are very few resources for the management and monitoring of this and similar-tenured grasslands.

Overall, it appears that resources, skills and knowledge for grassland management/restoration, are not consistent across tenures. **The establishment of a well-resourced and skilled ecosystem-focused body of management may assist with the development and implementation of a well-structured approach to grassland management, the maintenance of a knowledge base and identification of knowledge gaps, appropriate resource allocation, and timely dissemination of information, materials and resources.**

Grassland Threatened Species

Despite there being a large number of listed threatened taxa that are associated with native grasslands, very few have a clearly defined strategic plan for recovery. Some of the flagship species have recovery teams which are in various states of function. One of the best functioning is the *Pimelea spinescens* Recovery Team which is well-resourced with a paid co-ordinator and funds available for research and the implementation of management actions. This recovery team is inclusive of all players in the conservation of the species, including scientists, management practitioners, policy-makers, consultants and land managers (Craigie *et al.*, 2018).

Given that many of the management issues are similar for a variety of native grassland taxa, it makes sense to consider the **creation of an inclusive well-resourced and coordinated Grassland Recovery Team**. Sub-groups within the team could focus on particular groups of taxa (rather than a single species) which would contribute to a stronger network of knowledge and skill-sharing and better coordinated actions that are relevant to both the grassland community and its components.

Offsetting

Offsetting is an accounting process that postulates that there will be 'no net loss.' In remnant native grasslands, the 'no net loss' is often achieved by permitting the clearance of areas of remnant native grassland in exchange for protection of smaller but higher quality grassland remnants elsewhere. In urban areas, it is no longer possible to acquire suitable nearby offsets, and these are therefore established at distant locations. In a recent example, it was proposed that a small degraded urban remnant be approved for clearance, with the offset site located 130km on a larger parcel of farmland with high quality grassland values. The problem with this accounting system is that it is highly unlikely that the grassland values at the proposed offset site would be destroyed or diminished in the absence of the offset. That is, it is most likely that the condition of the offset site would have been maintained into the future, given that the farming practices up until the present time have allowed that grassland to persist. Thus, the destruction of an urban remnant is potentially being offset to a grassland that was unlikely to be lost in any case. Surely, this does not meet the standards of 'no net loss'?

In the case of urban grasslands, the loss of remnants through the offsetting process is not only the obvious loss of the area that is being destroyed, it is also a loss of local genetic material, a loss of recolonization opportunities (even if mediated by humans) and a loss of potential locations for threatened species recovery. For example, there is only a single remnant population of the once widespread Sunshine Diuris remaining. Whilst a new backup population is in the process of establishment at a nearby location, it is has been difficult to identify any further suitable translocation sites. As we continue to lose urban grassland remnants, the opportunities for finding alternative translocation sites is diminished. Remnant urban grasslands should be considered in the light of the opportunities that they present for the conservation of the ecosystem and its constituent taxa and not just for their current state of health/degradation.

The offsetting process is ecosystem/taxa focussed and does not take into account human interactions. Offsetting to distant locations does not provide tangible benefits to the communities where the loss occurs – it removes the opportunity for local residents to interact with, learn about and care for their local natural environment. How can Australians be expected to care for the environment when there is very little left in their urban environments to care for?

References

- Commonwealth of Australia, 2009. *Australia's Strategy for the National Reserve System 2009 – 2030*. Australian Government Natural Resource Policies and Program Committee.
- Craigie, V., Reynolds, D., Walsh, N., Mueck, S., James, L., Tonkinson, D. and Rudolph, P., 2018. Spiny Rice-flower – Small, Unassuming But With many Friends in S. Garnett, P. Latch, D. Lindenmayer & J. Woinarski (eds.) *Recovering Australian Threatened Species: A Book of Hope*. CSIRO Publishing, Clayton South.
- DSEWPac, 2011. *Nationally Threatened Ecological Communities of the Victorian Volcanic Plain: Natural Temperate Grassland & Grassy Eucalypt Woodland*. Australian Government Department of Sustainability, Environment, Water, Population and Communities, Barton.
- Gott, B., Williams, N.S.G., Antos, M., 2015. Humans and Grasslands – A Social History in N.S.G. Williams, A. Marshall & J.W. Morgan (eds.) *Land of Sweeping Plains*. CSIRO Publishing, Clayton South.
- Kendal, D., Zeeman, B., Ikin, K., Lunt, I., McDonnell, M.J., Farrar, A., Pearce, L.M. and Morgan, J.W., 2017. The Importance of Small Urban Reserves for Plant Conservation. *Biological Conservation*, 213: 146-153.
- O'Shea, M., 2016. *Population Viability Analyses for Urban Striped Legless Lizard Populations in the Western Melbourne Management Cluster*. Unpublished report, Victoria University, St Albans.
- O'Shea, M., 2017. *Supplementation for the Persistence of the Striped Legless Lizard Population at Paramount Grasslands*. Brimbank City Council and Victoria University, St Albans.
- VAGO, 2020. *Protecting Critically Endangered Grasslands*. Victorian Auditor-General's Office independent assurance report to Parliament: 16