



Eaten out of house and home: impacts of grazing on ground-dwelling reptiles in Australian grasslands and grassy woodlands

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Abstract: Across the globe, many species of reptile are threatened with extinction, with changes in grazing pressure a significant factor in their decline. Few studies have investigated the role of native herbivores, yet studying natural grazers may provide insight into natural grazing regimes, not apparent in studies of domestic livestock. In this study, we investigate the habitat requirements of a threatened Australian grassland reptile, the Striped Legless Lizard *Delma impar*, in grasslands grazed by a native herbivore, the Eastern Grey Kangaroo *Macropus giganteus*. *Delma impar* appears sensitive to habitat change resulting from altered grazing intensity, but a lack of information hinders implementation of appropriate grazing regimes. To address this gap, we investigated habitat preferences of *D. impar* at multiple spatial scales across a grazing gradient. We found that the occurrence of *D. impar* was not affected by the size of grassland remnants, but was negatively related to the density of native grazers. This result was likely a consequence of the negative effect of high grazing intensity on grass structural complexity, as the probability of encountering a *D. impar* was positively related to grass structural complexity at the fine scale (1 m²). We recommend that conservation efforts should avoid high intensity grazing (equivalent to >1.3 kangaroos/ha), yet ensure enough grazing disturbance is maintained to promote the formation of complex grass structures. We also recommend that small floristically degraded and fragmented grassland habitat should be included in conservation efforts. These recommendations will likely benefit a number of fauna in grasslands grazed by domestic and native grazers. Importantly, our data highlight the need for managing grazing regimes, even in environments dominated by native herbivores.

[Brett Howland's study, which he spoke about at this grasslands forum in 2014, is now (late 2015) the subject of a paper being published elsewhere, as below.]

Reference

Howland B., Stojanovic D., Gordon I.J., Stirenmann I., Fletcher D., Snape M. & Lindenmayer B.D. (in press) Habitat preferences of the threatened striped legless lizard: implications for the management of grazing in grasslands. *Austral Ecology*.

For over seven years I have worked as a wildlife ecologist, as both a researcher and a professional. Over this time I completed a degree with First Class Honours in Science and I am about to complete my PhD on the interactions between kangaroos and fauna, including reptiles and birds, in grasslands and grassy woodlands. These qualifications are complemented by work history with governmental agencies in both NSW and ACT and non-government agencies such as Bush Heritage and the Australian National University. Most of my work career has been within the ACT Conservation Research Unit, in which this job is based. Over the last seven years as a casual employee within this section I have been instrumental in the implementation of a kangaroo monitoring program using pellet counts, the creation of an ACT vegetation map, and the establishment of a research monitoring program looking at the effects of kangaroo grazing on reptiles and grass.