

Conservation and management of vertebrate fauna in lowland grasslands

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Introduction

Lowland native grassland habitat provides an important resource for many faunal species. It provides feeding sites for kangaroos, was described as a favoured feeding ground for the now extinct Thylacine and supports specialised species which live nowhere else, for example the legless lizards, *Delma impar* and *Aprasia parapulchella*. With the loss of extensive areas of pristine grassland, there has been a concurrent reduction in the habitat suitable for faunal species resulting in populations surviving in small, isolated remnants.

Fauna in Grasslands

Many of the animal species found in grasslands are considered to be rare or threatened. The Plains Wanderer (*Pedionomus torquatus*) is restricted to grassland areas in western Victoria and the Murray Valley riverine plains and is considered to be nationally vulnerable. This species prefers sparse grasslands which contain about 50 % bare ground (Baker-Gabb 1993). The Striped Legless Lizard (*Delma impar*) is found in grasslands to the west of Melbourne, the Monaro region in New South Wales and the ACT. Its conservation status is nationally vulnerable. It is found most often in grassland dominated by Kangaroo grass (*Themeda triandra*) or Spear grass (*Stipa spp.*). The Pink-Tailed Legless Lizard, (*Aprasia parapulchella*) is a species which is found only in rocky Kangaroo grass dominated sites, some of which may be secondary grassland. Its conservation status is vulnerable. The Eastern Barred Bandicoot (*Perameles gunnii*), was once found throughout the basalt plains grassland area in western Victoria but is now restricted to open woodland at Hamilton in Victoria and Tasmania (Kirkpatrick *et al.* 1995).

The Green and Golden Bell Frogs (*Litoria aurea* complex) once occurred in natural lowland grasslands around the Canberra district, but is now thought to be locally extinct (Osborne *et al.* 1996). The Southern Lined Earless Dragon (*Tympanocryptis lineata pinguicollis*) is restricted to southern and central Victoria, Cooma in New South Wales and the ACT. It is thought that these lizards are associated with native tussock grasses such as Wallaby, Spear and Kangaroo grass (Osborne *et al.* 1993).

The Pygmy Blue Tongue (*Tiliqua adelaidensis*) was thought to be extinct until its 1992 discovery in patches of remnant grassland near Burra in South Australia (Armstrong and Reid 1992). It is found in these grasslands with other grassland specialists, legless lizards such as *Aprasia pseudopulchella* and *Delma mollerii*.

Conservation problems of grassland species

Fragmentation

Fragmentation of grassland habitat is a consequence of the extensive habitat alteration and agricultural practices in native grasslands. Many grassland sites survive as remnants in an agricultural landscape. These fragments are often small and may not be large enough to support populations of animal species. Animal species require larger area than plants and may also need a range of habitats for differing needs. Fragmentation reduces available habitat, movement corridors and sub-optimal habitat (Saunders *et al.* 1991). It also creates edge effects which again reduce the habitat components available to a species. It is possible that fragmented populations have been reduced to the extent that they can be considered small and are subject to the problems faced by small populations. They may therefore be more susceptible to disturbance from environmental and demographic stochastic events and may be more likely to go extinct as a result of the reduced population size.

Grazing

Grazing can provide conflicting problems when trying to maintain grasslands as faunal habitat. Grazing can lead to soil compaction which creates problems for species which spend some of their time underground, (e.g. earless dragon, legless lizards). Striped legless lizards may shelter from unsuitable weather or fire in the naturally produced cracks of the black cracking clays. Intensive grazing can reduce the cracks available for the lizards. Plains Wanderers and many threatened grassland plants are displaced by cultivation, overgrazing, dense introduced pasture grasses and weeds (Baker-Gabb 1993).

Changes in habitat structure

Changes in the structure of native grasslands is a consequence of altered fire regime, the invasion of introduced weed species and intensive grazing. Alteration in structure can make grassland remnants unsuitable for faunal species. The Pink-Tailed Legless Lizard is favoured by a thick cover of Kangaroo Grass and is less likely to occur in a site after grazing when this thick cover is often totally removed. The Plains Wanderer requires an open vegetation structure and if sites are overgrazed, then the already limited cover may be further reduced, resulting in the loss of the species from the area (Baker-Gabb 1993). There is some evidence to suggest that certain grassland species may be able to survive in an area if the basic structure of the original habitat is maintained. This includes the Striped Legless Lizard, *Delma impar*, which can live in serrated tussock paddocks, possibly because it provides thick tussocks which the species likes to shelter in. The Plains Wanderer can also be found occasionally in cereal stubble and low crops which may offer similar structure to sparse grasslands (Baker-Gabb 1993).

Management considerations for fauna in grasslands

Corridors

While there is still much debate about the suitability of corridors for wildlife management, providing corridors leads to an increase in suitable habitat which can only be beneficial. Corridors also provide a potential for movement between isolated populations. With the isolation of many faunal populations it is an important conservation consideration to provide the means for animals to move between populations. The mixing of populations is desirable as it effectively increases the size of populations and results in the sharing of genetic material between populations.

Relocation

Relocation is one term used to describe the movement of animals for the purpose of conservation. This can involve the moving of a population threatened with destruction or the addition of animals new to new site. Relocation is becoming a commonly used technique for the management of faunal species. It is however, a technique which is yet to have been proven as an effective conservation tool. Detailed biological knowledge on the habitat requirements and biology of a species is required before relocations can have a reasonable chance of success. For most grassland fauna

detailed biological information is lacking. One of the biggest problems with these techniques is the failure to diagnose and remove the cause of decline of the species prior to reintroducing it into new habitat.

Restoration

Habitat restoration will become increasingly important for the management of faunal species. There are currently many populations of species threatened by the fact that they are forced in small pockets of remnant vegetation and their only chance to increase population size to a viable level is to restore surrounding habitat. Habitat restoration is a long-term option for faunal species and requires considerable financial investment. It also requires detailed knowledge of the key habitat requirements of a species so these can be duplicated during the restoration.

Conclusions

The value of remnant grassland as habitat for faunal species has been largely overlooked in the past. There are however, a number of vertebrate species which are dependant on native grassland remnants for their continued survival. Many of these species are rare or threatened and require special consideration in the management of grassland remnants if their continued survival is to be ensured.

References

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