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WOODLAND BIODIVERSITY CONSERVATION: BASKET-CASE OR BATTLEGROUND? INSIGHTS FROM THE MALLEE

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1. Farming in extensively cleared landscapes is not ecologically sustainable because one-fifth to one-third of animal species is on a declining trajectory. Keeping all remnant vegetation and restoring substantial areas of native vegetation is needed to halt declining trajectories and stem the loss of biodiversity.
2. Narrow linear remnants provide important habitat for reptiles and beetles, but their value is altered by livestock grazing and when adjacent to roads.
3. Large, regularly spaced reserves are needed for effective connectivity, to account for species turnover and to accommodate intraspecific genetic variation. Biodiversity conservation depends on large reserves.
4. Some species specialise in using the same habitat that is targeted for land clearing. Restoration of under-represented communities would help rebuild the balance.
5. Fire exclusion from remnant mallee woodland vegetation has the potential to drive species towards extinction, but so could frequent fire.
6. Reptile and beetle species with limited dispersal may be those most vulnerable to decline in fragmented landscapes, but a combination of traits is likely to be important.
7. Beware of assumptions about how populations of species interact with the spatial arrangement of habitat. Metapopulations may be rare.

Introduction

Mallee woodlands continue to provide a substantial focus of my research into habitat loss, fragmentation, and fire ecology. Mallee straddles the boundary of the Australian wheatbelt and the semi-arid rangelands, and so occurs in some large intact regions as well as small remnants in agricultural landscapes (see map on next page). This combination provides the opportunity to compare intact and fragmented communities; a rare opportunity among Australian temperate woodland types.