Understanding buffel grass invasion for reptiles

Abstract

Buffel grass has historically been viewed mainly as a high value pastoral grass, however, increasing evidence indicates that it has become a prolific weed across Australia's interior. It has been linked to changes in reptile community structure and condition, yet the mechanisms behind these changes are poorly understood. I aim to assess how buffel grass invasion alters the abiotic and biotic factors that influence reptile communities. Habitat structure, thermal environments and predator prey interactions will be assessed in conjunction with the condition and composition of the reptile community in buffel invaded and non-invaded mitchell grasslands and gidgee woodlands. Habitat preferences of generalist and specialist taxa will then be assessed through a mesocosm experiment to experimentally determine what factors drive habitat selection. Reptile community composition and condition is expected to be greater in non-invaded habitats due to potentially greater prey availability and diversity, and more optimal thermal regimes. Predation risk is expected to be greater in native habitats with reduced ground cover, however, increase mobility through the environment is expected to mitigate predation pressure. Within mesocosm experiments, reptiles are expected to actively select away from buffel grass for native habitats, with preference to be driven by more favourable habitat structure and thermal conditions in native grasses. This research will finally identify how abiotic and biotic changes to the landscape impact reptile communities and inform land management. In a country where buffel grass eradication is impossible, effective management is vital to ensure biodiversity persists in increasingly invaded landscapes.

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