

Conserving Reptiles in Agricultural Landscapes

ARE WE MAKING A DIFFERENCE?



Olive Legless Lizard (Photo by Damian Michael)

Reptiles in Box Gum Grassy Woodlands

Box Gum Grassy Woodlands (BGGW) in southeastern Australia occur in a nationally important agricultural region, but are also a highly threatened ecological community. This type of woodland community grows on the deep fertile soils along the inland slopes of the Great Dividing Range, and is home to various iconic woodland animals, many of which are threatened with extinction due to habitat loss.

With over 80 species, snakes and lizards are a major group of animals that occur in the BGGW. Several species are well known, such as the Bearded Dragon, Goanna and Brown Snake, but the vast majority are secretive, only come out at night or spend the majority of time sheltering beneath logs, rocks or in loose soil. Over the past two decades, our group at ANU has been conducting research on snakes and lizards in farming landscapes to better understand their distribution, habitat use and response to habitat restoration and native vegetation management.

Do tree plantings help reptiles?

One of our key findings is that reptiles use habitats in very different ways than birds or possums, and strategies to improve 'biodiversity' do not necessarily benefit all reptiles. For example, over the past 20 years a huge amount of tree plantings has created habitat for threatened woodland birds, and populations of many bird species have steadily grown. However, we found that only a handful of reptile species use tree plantings, and most of these are habitat generalists, capable of moving through cleared pasture, or species that were already present onsite.

However we do find more species of reptiles in tree plantings if other key habitats are available, such as dead trees, fallen timber and native tussock grasses. We also find that dense tree plantings on rocky hill tops can reduce lizard populations because of the increased shade levels caused by canopy cover, which can reduce basking areas. Based on these findings, we recommend that plantings are widely spaced in rocky areas and incorporate more low growing shrubs instead of all trees.

The value of granite outcrops

Recognising that rocky areas provide important reptile habitat on farms led us to explore in more detail the ecological values of granite outcrops. In many agricultural areas, these islands of rock are completely surrounded by grazing and cropping land. Our surveys identified that granite outcrops, or inselbergs as they are often called (which means 'island mountain'), support more reptile species than similar-sized patches of remnant vegetation.

"Granite outcrops support more reptile species than similar-sized patches of remnant vegetation"

Many of the species that live on granite outcrops live entirely on rocks, including several species of Gecko and the Tree Crevice Skink. Other species, such as the iconic Inland Carpet Python, rely entirely on rocky outcrops for winter hibernation and as a source of rabbits - one of their primary food items in the absence of medium-sized native mammals which once roamed the landscape. Rocky outcrops also provide important ecological services which have production benefits, including contributing minerals to the soil, providing ephemeral springs, cycling nutrients and providing shelter for stock.

However, outcrop vegetation is often degraded by over-grazing and competition by invasive weeds. Fencing out livestock is one way to help improve outcrop vegetation and reptile habitat. Unfortunately, fencing is often expensive and the small size of many outcrops means that they are not suitable for inclusion in land covenants or native vegetation management incentive programs, which have been the focus of our recent long-term monitoring programs.



Boulenger's Skink (Photo by Damian Michael)

Ongoing research to help conserve reptiles

Across the BGGW, we are comparing reptile numbers in areas that are excluded from livestock grazing, or receive only winter grazing to reduce annual grass biomass, with areas that are set stocked throughout the year. Although results are preliminary, we have increases in numbers of some species, such as small nocturnal snakes, as a result of changes in grazing pressure (probably due to reduced trampling and vibrations). Some species, such as Boulenger's Skink and the Ragged Snake-Eyed Skink, increased as a result of fallen timber retention.

However, for the majority of reptile species in the BGGW we are yet to see any significant changes. We believe this is partially due to the very specific habitat requirements of many species and gaps in the understanding of how to improve critical habitat for this diverse group. Bush rock collection and the loss of large paddocks trees continues to have a major effect on reptile populations in the BGGW.

We hope that our research will in the future be useful for developing financial incentive schemes that target critical resources used by reptiles before any of these species are added to the threatened species list.

Author: Dr Damian Michael, Australian National University

This Fact Sheet is one of a series produced through the Murrumbidgee Landcare project "Cross Property Planning to Balance Production and Conservation". This project was assisted with funding from the NSW Environmental Trust's "Community Bush Regeneration" program, and the Australian Government.



MURRUMBIDGEE
Landcare
INCORPORATED



Australian Government



NSW
GOVERNMENT

