



▶▶▶ Reptiles and remnants – what can lizards tell us about the landscape

The retention and conservative management of remnant native vegetation is often touted as the key to biodiversity conservation in rural areas. But what scientific evidence is available to back up claims that fragmentation of remnant vegetation is detrimental to fauna conservation?

Poplar box, geckos and landscape health

Environmental Protection Agency ecologists recently completed a study of reptile species richness in poplar box woodlands (both remnant and regrowth) and gained important insights into ecological processes in the Southern Brigalow Belt biogeographic region. These woodlands once covered almost a quarter of the bioregion, but have been extensively fragmented by development. Over half of the remaining poplar box remnants are less than 10 hectares in size.

The ecologists found 1779 reptiles, from 42 species, across the 60 study sites they visited. The study showed that every species has slightly different needs in the environment and respond differently to changes. With clearing and fragmentation, some species decreased, some seemed unaffected and one species increased.

In fragmented areas, the reptile community was dominated by “habitat generalists” like the Bynoe’s gecko. These are species that readily adapt to many habitat types and are therefore fairly resilient to disturbance. Habitat specialists (those with very particular habitat requirements), like the ocellated velvet gecko, tended to be absent or less abundant in fragmented areas.



Left: Bynoe's Gecko, a habitat generalist, was common in both fragmented and intact habitats.



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The key features of study sites that were related to reptile species diversity and abundance included:

- soil characteristics like the amount of sand in the soil
- the rainfall history of the area
- the presence of *fallen timber* on the ground
- the cover of *tussock grasses*
- the *shape of the remnant* (rounder is better)
- the overall *amount of retained vegetation* at the property scale

While land managers have little control over rainfall or sand content in the soil, they certainly can influence the *condition* of their remnants, as well as remnant patch shape and connectedness with other vegetation. Habitat condition in remnants is closely related to management of grazing, fire and weeds, all of which influence the presence of fallen timber and cover of tussock grasses. Judicious management of remnant and regrowth vegetation can also create a favourable environment of well-connected, rounder patches dotted across the property.

Fragmented landscapes provide important habitat for reptiles, but their diversity and abundance will continue to decline if the condition, shape and connectivity between remnants is not improved at property and landscape scales.



Right: The Ocellated Velvet Gecko is a habitat specialist, restricted to more intact vegetation. Photo: M. Sanders.

Source:

Venz, M.F., Eyre, T.J., Lawrence, A. and Chilcott, C. (2003). Ecological thresholds in southern Queensland: lessons from the lizards. Poster presented at Ecological Society of Australia Conference, Armidale, December 2003.