

Glowing geckos show trees vital to farm biodiversity

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Credit: Ashley Kay

Researchers at ANU have used glow-in-the-dark geckos to help shed light on the mysteries of animal navigation and to help improve biodiversity in farming landscapes.

The study reveals the small navigating reptiles rely on certain cues to find their way, and can benefit from easy and cost-effective changes in

landscape management, such as leaving isolated trees and planning the direction of sown crops.

Lead researcher Geoffrey Kay from the ANU Fenner School of Environment and Society said the discovery is important because land clearing and [habitat](#) fragmentation is the leading cause of biodiversity decline globally, and continues to threaten Australian biodiversity.

"Large old scattered trees have been shown to have immense ecological, social and economic value. Our work also shows that they are useful as visual flagpoles for native fauna navigating across the countryside," Mr Kay said.

"Importantly, we've also discovered that movements between habitat patches are heavily influenced by the height of pasture, and the direction of sown crops in agricultural fields."

The study used the nocturnal Marbled Gecko, common across southern Australia and to the woodlands near Canberra.



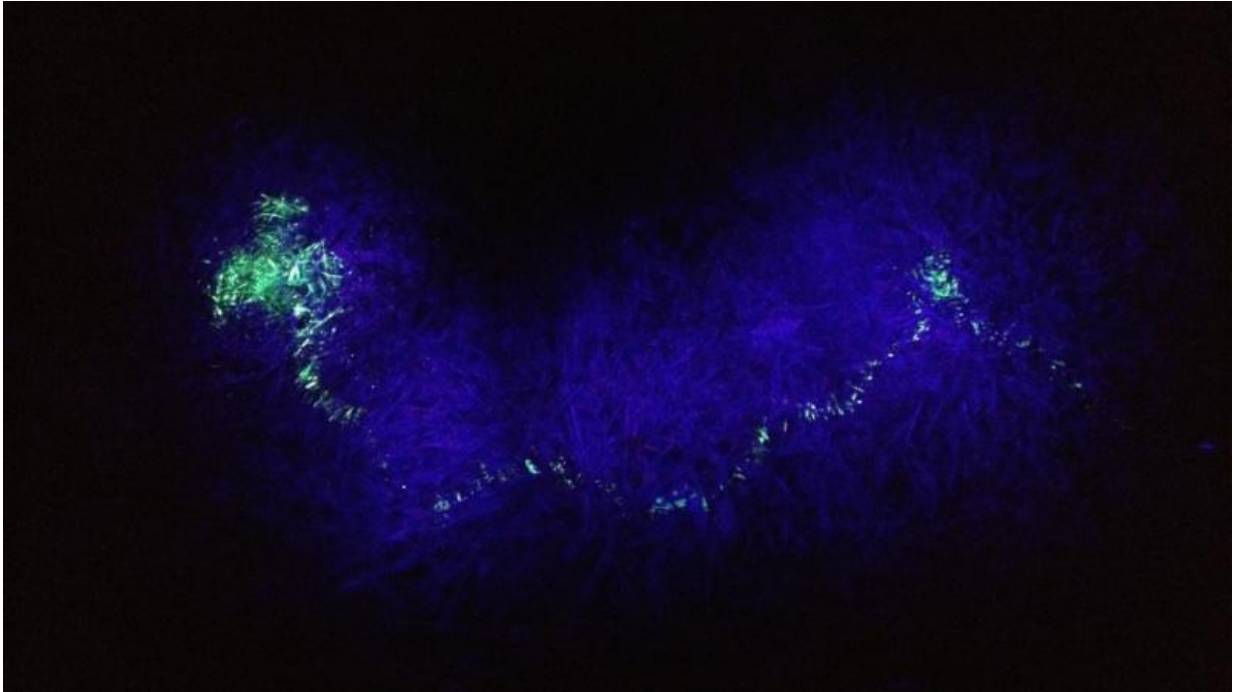
A marbled gecko *Christinus marmoratus* in its native woodland habitat near Binalong, New South Wales. Credit: Geoff Kay, ANU.

"By releasing geckos dusted with fluorescent powder into fields, and returning to track the glowing trails at night, we were able to map fine-scaled movements that have previously not been possible with traditional tracking techniques," Mr Kay said.

The research found the geckos can identify habitat at 40 metres away, but not 80 metres away, suggesting that the loss of trees would reduce the amount of habitat for many species and reduce connectivity of already fragmented landscapes for some migrating species.

Mr Kay said the research presents some simple but potentially effective options for reconnecting fragmented landscapes.

"It is important financial incentives are put in place to encourage landholders to crop landscapes directionally between habitat patches to enhance the connectivity for reptiles, and potentially other fauna, which are a conservation priority given their rapid decline in [agricultural landscapes](#) globally," he said.



A gecko trail shines brightly. Credit: Ashley Kay.

Mr Kay said the research also demonstrated the need for stricter regulations to prevent the loss of critical habitat elements, such as old scattered trees, in [agricultural landscapes](#).

The research has been published in *Agriculture, Ecosystems and Environment*.

More information: Geoffrey M. Kay et al. Pasture height and crop direction influence reptile movement in an agricultural matrix, *Agriculture, Ecosystems & Environment* (2016). [DOI: 10.1016/j.agee.2016.10.019](https://doi.org/10.1016/j.agee.2016.10.019)

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