

## **6. Malleefowl mound building: Effects on fire behaviour and habitat**

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### ***Summary***

The removal of leaf litter by Malleefowl during mound building potentially influences fire behaviour.

### ***Abstract***

Malleefowl remove large amounts of leaf litter from the areas surrounding their mound for use in egg incubation. This study is investigating the reduction of litter around the mound and the potential effects it could have on fire behaviour. Four 30-metre line transects radiating from the mound were used to measure leaf litter depth and vegetation structure. These measurements were compared to paired “non-mound” sites. There was a significant difference between mean litter around the mound compared to the non-mound. To investigate effects of fuel reduction on fire intensity, I compared minimum branch diameter between mound and non-mound sites in an area recently burnt by wildfire. There was a trend for braches to be smaller around mounds, suggesting reduced fire intensity. However this result was statistically non-significant. Malleefowl mound building reduces litter fuel loads in the area around mounds, and may contribute to variation in fire behaviour.

# Malleefowl Mound Building: Effects on Fire Behaviour and Habitat

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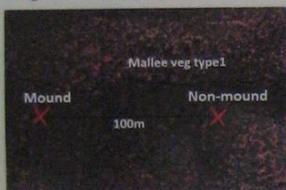
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## Introduction

Malleefowl remove large amounts of leaf litter from the area surrounding their mound for use in egg incubation. This means the presence of the mound creates a "halo effect" where litter load is reduced for approximately 0.2ha<sup>2</sup> surrounding the mound. A reduction in litter is related to a reduction in fire intensity in mallee vegetation. This study investigated whether the removal of litter by malleefowl was significant enough to reduce fire intensity. To investigate effects of fuel reduction on fire intensity, we compared minimum branch diameter between mound and non-mound sites in an area recently burnt by wildfire. In addition we looked at whether vegetation structure was effected by mound presence.

## Methods

**Litter and vegetation:** 70 mounds were sampled in Northern Victoria. At each mound 30 meter transect lines were run out in 4 directions from the mound. Litter depth and vegetation structure were measured every meter along 4 30m transects running N, S, E and W. The same measurements were carried out at a non mound site with matched for aspect, soil, fire history, and vegetation type.

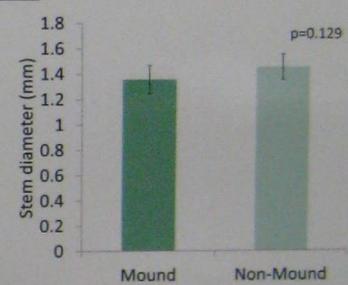
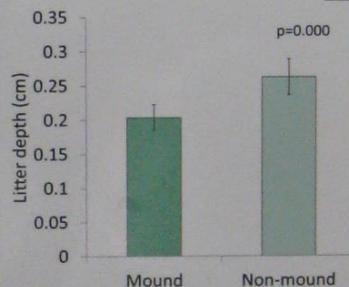


**Fire intensity:** Fire intensity measurements were carried out in Bronzewing reserve, which was burnt in January 2014. Minimum stem diameter was measured within 10 meters of burnt mounds and compared to stem diameter in nearby burnt areas.



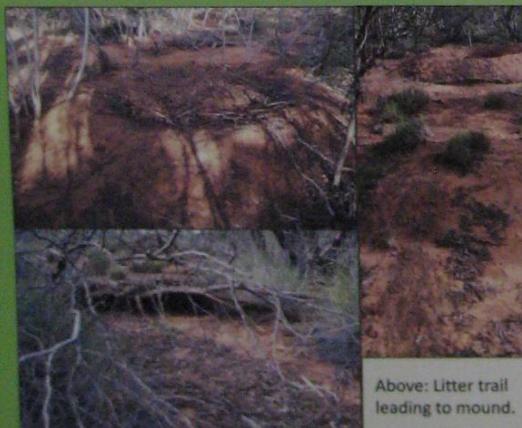
Well-worked area near a malleefowl mound compared to normal litter under trees in mallee scrub.

## Results

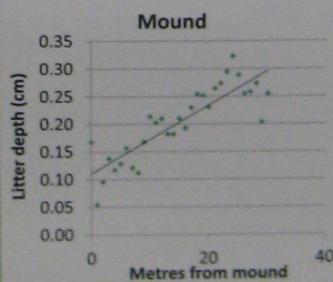


Mound sites had a 22.4% reduction in litter compared to non mound sites.

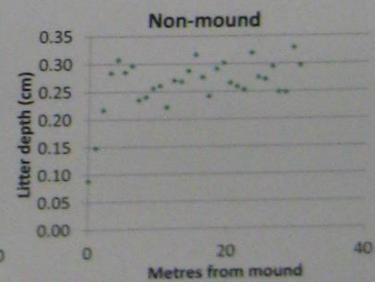
Mound sites had only a 6.9% reduction in stem diameter compare to mound. This difference is not statistically significant.



Top left: malleefowl mound full of leaf litter.  
Bottom: A pile up of litter where a litter trail has gone over a tree branch.



Litter depth was found to increase with distance from the mound.



In the absence of a mound litter showed little variation over the 30m.

## Discussion

Malleefowl removal of leaf litter was found to reduce fuel load around malleefowl mounds. However whether or not this could reduce fire intensity is unclear. In burnt mallee vegetation there was a trend for branches to be smaller around recently burnt mounds, suggesting reduced fire intensity. However this result was statistically non-significant.

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