

**ASSOCIATIONS BETWEEN  
KOALA FAECAL PELLETS AND  
TREES AT DORRIGO.**

By

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A thesis submitted in fulfilment of the  
requirements for the degree of

**MASTER OF RESOURCE SCIENCE**

**UNIVERSITY OF NEW ENGLAND**

1998

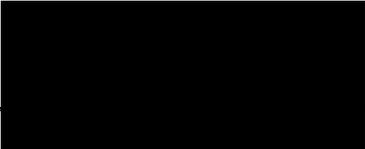
**Plate 1:** An adult male koala resting.



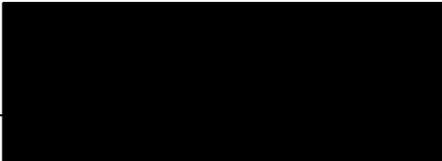
## DECLARATION

I certify that the substance of this thesis is my original work, has not already been submitted for any degree or diploma and is not being currently submitted for any other degree or diploma.

I certify that, to the best of my knowledge, any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.

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I certify that this thesis does not exceed the 30,000-word limit for the text, excluding title page, abstract, Table of Contents, lists, bibliography and appendices.

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I wish to point out that, up until November 1997, I have been an employee of State Forests of NSW. I have conducted many field surveys for koalas in forests at Dorrigo and elsewhere in NSW, and have an intimate knowledge of forest management practises.

## **ABSTRACT**

### **ASSOCIATIONS BETWEEN KOALA FAECAL PELLETS AND TREES AT DORRIGO.**

**By PAUL KINGSLEY ROBERTS**

Surveys are an important component of the legislative basis of protection and management of the koalas and their habitat in New South Wales. The search for faecal pellets provides a substantial source of information about the koala. At Dorrigo on the north coast of New South Wales, the forests are quite variable and have a composition that reflects a long and varied history of timber harvesting. Koalas appear to be widespread in the area, but at low population levels. The distribution and abundance of pellets are associated with tree density, size and species, and types of forest. Specifically, koala faecal pellets are associated with trees in less dense forests of 75-100 stems per hectare. Trees with pellet presence were not statistically associated with tree size, although trees with many pellets tended to be larger trees and medium-sized trees (60-90cm DBHOB) were the most preferred and important size to koalas. Tallowwood was the most preferred and important tree species to koalas. Occurrence of pellets is associated with Tallowwood/Sydney Blue Gum forests, steeper slopes and repeated logging but with long intervals between events. A number of implications arise for koala faecal pellet surveys and the management of forestry operations, including timber harvesting. Surveys should preferably be conducted during drier months of autumn and winter, cover a wider search area to decrease the

variability in finding trees with scats, target forests in which Tallowwood, Sydney Blue Gum and Forest Oak are predominant, include Forest Oak as a preferred tree, target Tallowwood as the tree of primary importance to koalas at Dorrigo, and place more emphasis on trees with many scats as indicators of preferred habitat to koalas. Forests at Dorrigo can be more appropriately managed for koalas in areas where they are known to occur by increasing the interval between timber harvesting operations to at least 10 years and preferably up to 30 years, scheduling harvesting to increase the number of areas logged more than twice, maintaining around 75-100 stems >30cm DBHOB per hectare, retaining trees with >10 scats (within 1m), maintaining at least 3 recognised koala food tree species per site, avoiding damage to preferred tree species, and encouraging regeneration of preferred tree species through the use of cultural operations.

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## ACKNOWLEDGEMENTS

The author wishes to thank a number of people for their help throughout this project. I thank Jack Young, Bill Browning, Flavio Bugno, Andrew Elks and Justin Williams for their assistance with experimental surveys; Mick and Katherine Wilson and Fiona Griffin for their assistance in conducting spotlight surveys; and Duncan Watt for supplying forest type data. Koala scat moth larvae were nurtured by Jack Simpson (State Forests Research) and are being identified by M. Horak (CSIRO, Canberra). I thank the Coffs Harbour Zoo, particularly the General Manager Ms Tammy Mills-Thom, for providing faecal pellet material for use in the deterioration experiment, and Kate MacGregor (UNE) for conducting limited scat analysis. Graeme Moss and Andrew Bolton (UNE) and Mat Williams (CALM, WA) have provided valuable statistical guidance. Dr. Peter Jarman has provided helpful advice and guidance from day one and I thank him sincerely. State Forests of NSW and District Forester John Ball provided many resources for this project and without their help and support, this study would have been very difficult to complete. I thank Peter Jarman, Vic Jurskis, Charlie Mackowski, John Murray and Russell Turner for their useful comments on a draft of this manuscript. Lastly, I wish to thank Lynden and Allan Roberts and Fiona Griffin for their moral support.

## GLOSSARY

**ANOVA:** Analysis of Variance: a statistical technique for partitioning the total variability affecting a set of observations between the possible and statistically independent causes of the variability (Lincoln et al., 1982).

**Arboreal:** Living in trees. Adapted for life in trees.

**Coefficient of Determination:** An index of the amount of linear variation in a factor explained by the variable that varies from 0 to 1.

**Contingency Table:** An arrangement in which a set of objects is classified according to two criteria of classification, one criterion being entered in rows, the other in columns (Alder and Roessler, 1972).

**EIS:** Environmental Impact Statement.

**End-point:** The point at which the useful commercial (rotation length) or size-limited (eg 80cm DBHOB for Blackbutt) life of a timber producing stand or tree reaches prior to harvesting and restarting.

**Folivorous:** Leaf eating (Lincoln et al., 1982).

**Habitat:** A place where an animal or plant naturally lives or grows.

**Management Area:** An administrative area consisting of a number of State Forests with similar attributes such as vegetation, historical administration, wood supply, topography, drainage or general location.

**Scansorial:** Climbing or adapted for climbing (Lincoln et al., 1982).

**Scat:** An animal faecal dropping (Lincoln et al., 1982).