THE ECOLOGY AND HABITAT SELECTION OF THE GOLDEN-BACKED TREE-RAT (*MESEMBRIOMYS MACRURUS*), IN THE NORTH KIMBERLEY, WESTERN AUSTRALIA

Rosemary Hohnen[1], Dr Katherine Tuft[2], Dr Sarah Legge[2], Professor Chris Johnson[1], Dr Ian Radford[3], Dr Chris Burridge[1]
[1]School of Biological Sciences, The University of Tasmania, [2]Mornington Sanctuary, Australian Wildlife Conservancy, [3]Department of Environment and Conservation, Western Australia

The Golden-backed Tree-rat (*Mesembriomys macrurus*) is one of many mammal species in Northern Australia that have recently experienced dramatic population declines. In this study we examined *M. macrurus* foraging and den site selection, and habitat use with respect to vegetation type and time since fire. We radio-tracked 16 individual tree-rats to their foraging and den sites between January 2013 and January 2014. Foraging observations identified that certain tree species were frequently used by *M. macrurus,* including: *Terminalia hadleyana*, *Planchonia rupestris*, *Celtis philippensis*, and *Owenia verinicosa*. Individuals used a range of den sites, including: cliffs, trees, logs, scree, rock castles and stags. Of the trees used as dens, classification trees identified that species, and the presence of hollows, were the most important factors determining the probability of use. We examined habitat selection of *M. macrurus* by comparing the availability of eight habitat types around real (used) and randomly generated (available) location points, using bayesian hierarchical mixed effects models. Tree-rats had high individual variability in their use of habitats, but in general, selected for long unburnt (3+ years post fire) rainforest and river edge habitats more than sandstone savannah vegetation between 1 and 12 months post fire. There was minimal selection of long unburnt sandstone savannah (3+ years post fire), boulder scree (3+ years post fire), or basalt savannah (2 months post fire) habitats. The continued persistence of *M. macrurus* in the north Kimberley would be supported by fire management strategies that decrease fire intensity and frequency, to conserve fruiting trees, hollow bearing trees and rainforest pockets.

Rosemary Hohnen conducted her honours on the endocrinology of blue-tounged lizards, and since then worked as an intern for Australian Wildlife Conservancy. In 2012 she began her PhD on Northern Australia's mammal declines, examining the North Kimberly as a refuge for mammal diversity.