Dr Ian J. Radford, Kimberley Regional Fire Ecologist, Department of Biodiversity, Conservation and Attractions; ian.radford@dbca.wa.gov.au;

Co-authors

Leigh-Ann Woolley[2], Ben Corey[1], Tom Vigilante[3, 4], Wunambal Gaambera Aboriginal Corporation[4], Ed Hatherley[1], Richard Fairman[1], Karin Carnes[1], Anthony N. Start[1]

[1]Department of Biodiversity, Conservation and Attractions WA

[2]NESP Threatened Species Recovery Hub

[3]Wunambal Gaambera Aboriginal Corporation

[4]Bush Heritage Australia

Title of the Presentation

Prescribed burning benefits threatened mammals in northern Australia

Short description of the presentation

Although many fire management programs report on changes achieved to fire regime metrics, few have demonstrated associated benefits for threatened biodiversity. In this presentation we demonstrate that threatened mammal assemblages in the north-west Kimberley improved with co-operative fire management by Parks and Wildlife WA (and predecessors) and the Wunambal Gaambera Aboriginal Corporation from 2011 to 2016. Fire regimes changed under active fire management programs, with increases in the annual extent of early dry season (EDS) burning and decreases in late dry season (LDS) burning. Pre-management surveys combined with post-management monitoring enabled us to show that threatened mammals overall, large marsupials, specialist tree and rock rats, and small insectivorous dasyurids all increased in abundance during the fire management period. In rocky habitats increases in mammal abundance were related to the extent of EDS burning, suggesting a direct link with fire management. In non-rocky savannas however, mammal abundance was most closely related to vegetation cover, rather than to fire regimes directly. Both sets of data support applications of prescribed EDS fire into savannas to reduce variability in the extent of annual fire (boom-bust cycles) and to benefit threatened mammals. However, negative relationships between mammal abundance and total fire extent of > 50 % of the study area suggests an upper limit for prescribed EDS burning. Ongoing monitoring of threatened mammals is crucial if biodiversity stability and improvement is to be maintained over the long term.