S2.3- Fox, E.[1]; **Douglas, T.K.[1]**; Gosper, C.R.[2,3]; Watson, S.J.[4] and Chapman, A.[1]

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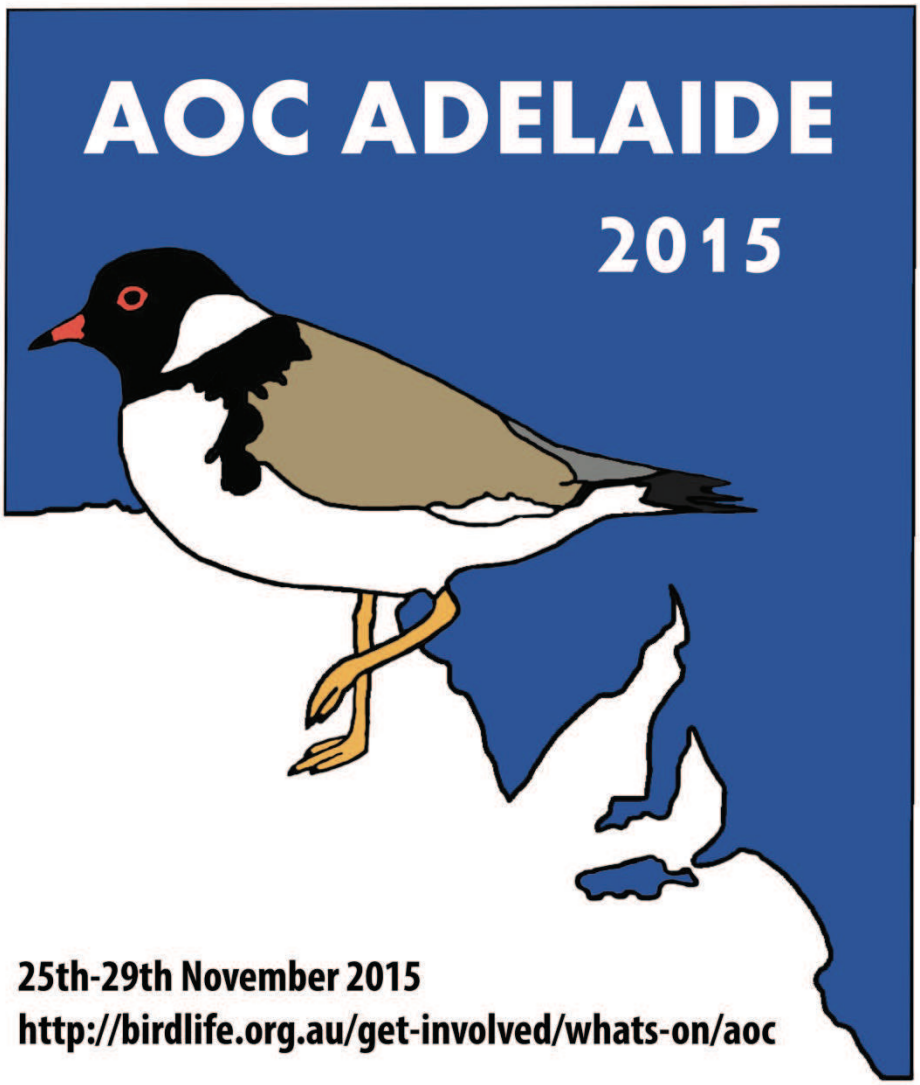
Fire and the bird communities of the Great Western Woodlands: 300 years in the making.

Fire is a major disturbance process influencing bird abundance, richness, and diversity, so understanding how bird community composition changes with post-fire age is critical for appropriate land management. Assessing species' responses to fire in ecosystems with fire return intervals of decades or centuries can be challenging as fire events pre-date accurate record keeping, so age of vegetation can be unknown. In Gimlet *Eucalyptus salubris* woodlands however, the almost complete mortality of trees following fire events allows stands to be aged reliably, making it ideal for chronosequence studies. As part of a broader bird research project in the Great Western Woodlands, bird surveys were repeated in Gimlet woodland sites (n = 57) of various ages since fire (5 – 300 years). Analysing changes in community composition using PERMANOVA highlighted substantial differences in bird communities between young, intermediate and mature Gimlet woodland sites. Responses of individual bird species were also analysed, using generalised additive mixed models. Four types of responses between a species' probability of occurrence and post-fire age were identified: incline, decline, bell, and delayed. Birds exhibiting a delayed response, such as Rufous Treecreeper *Climacteris rufa*, were largely absent from young Gimlet stands, and in the case of treecreepers only began to reoccur in sites that were at least 150 year post-fire. This study reinforces the value of old growth woodlands, identifies the time scales over which old-growth habitat features important to birds develop, and highlights a number of species that are at risk of significant population declines if inappropriate fire regimes occur.

AUSTRALASIAN ORNITHOLOGICAL CONFERENCE 2015

Flinders University, Adelaide, South Australia



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