Threshold effect of eucalypt density on birds in Buloke woodlands: the importance of species choice in restoration projects.

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The buloke woodlands of south eastern Australia are of high value for bird conservation but are nationally endangered and highly depleted. Buloke is a slow-growing species and current projects aiming to restore buloke woodland usually incorporate a high density of faster-growing eucalypts in plantings. I aimed to determine whether the habitat value of buloke woodland to woodland bird assemblages is altered when eucalypts are present, and in particular, whether a particular density of eucalypts facilitates invasion by aggressive noisy miners – a species absent from pure buloke woodland. Transects in 31 buloke woodland sites containing eucalypt densities between 0–16/ha were surveyed three times each over a period of one year. I found that the probability of noisy miner presence in buloke woodland increased markedly where eucalypts were present at a density of approximately five per hectare. This is the likely cause of a substantial difference in bird assemblage structure and composition between sites with >5 eucalypts/ha and those with fewer eucalypts. Low-eucalypt density sites had more hooded robins, dusky woodswallows, varied sittellas and yellow thornbills, all smaller-bodied insectivorous species which are experiencing population declines in southern Australia. Higher eucalypt density sites were characterised by Australian magpies, white-plumed honeyeaters, crested pigeons and eastern rosellas, all common open-country or aggressive species. These findings have implications for revegetation and restoration practices in buloke woodlands, and potentially also in other non-eucalypt woodlands within the range of the noisy miner.