

How do Grey-crowned Babbler group dynamics and dispersal change over time in an urban habitat?

Proposed Honours project

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Introduction

Species with complex avian breeding or social systems could be more negatively affected by disruptions to biological processes than those with simpler ones (Fischer and Lindenmayer 2007). Habitat fragmentation is believed to disrupt social interaction among groups, reducing group size, possibly leading to inbreeding and resulting in reduced breeding success (Garnett and Crowley 2000, Walters et al. 2004). Bird populations in fragmented habitat may have an imbalanced sex ratio, with an excess of males. This is because females, typically the dispersing sex, leave isolated populations at a greater rate than new females arrive (Dale 2001). This leaves many males unpaired and, in the case of cooperative breeders, may lead to groups containing only males (e. g. Walters et al. 1999). Individuals living in degraded environments may also show physiological stress, which may be indicated by low body weights (Cucco et al. 2002).

Numerous studies have been conducted on the Greycrowned Babbler's life history, cooperative behaviour and social structure (Counsilman 1979, King 1980, Brown et al. 1982a, Brown et al. 1982b, Brown et al. 1983, Dow and King 1984, Blackmore and Heinsohn 2007, Eguchi et al. 2007, Blackmore and Heinsohn 2008). The species lives in groups, whose members defend a territory year-round and roost together (King 1980, Dow and King 1984). It breeds cooperatively and most helpers are offspring of the breeding pair from previous broods, genetically evidenced by Blackmore and Heinsohn (2008). Both sexes may become helpers (Brown et al. 1983) and can be admitted into the group from other groups (King 1980), but only male helpers improve the reproductive success of the groups (Blackmore and Heinsohn 2007). Groups of two or three have been found to produce few fledglings (Brown et al. 1982a, Eguchi et al. 2007) and in small fragments, groups eventually disappear (Lockwood and Robinson 1997).

Lambert et al. (2013) studied the group size and composition of a population of Grey-crowned Babblers in and around Dubbo, and found that the population appears to be healthy. Average group size and numbers of young birds were as high as in any other populations studied and are certainly higher than in the endangered Victorian population (Robinson 2006). There was no evidence of a male biased sex ratio, and all groups had adult females. Breeding and recruitment in recent years had obviously been successful, despite the recent drought, with all but one group having immature birds or young adults. Finally, individual birds were not especially light, providing no evidence of food shortage or other stresses. However, this was only a 'snap shot' of Grey-crowned Babbler population dynamics and further research is required to determine how dispersal occurs and the population changes through time so that it continues into the future.

A project in this area might investigate links between grey-crowned babbler populations, their composition, habitat use and dispersal in an urban environment.

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