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A long-term study of a Western Magpie *Gymnorhina tibicen dorsalis* population: group structure and demography

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The Australian Magpie *Gymnorhina tibicen* exhibits marked geographical variation in sociality and aspects of its demography. We conducted a 12-year investigation of a colour-banded population of Western Magpies *G. t. dorsalis* at Guildford, Western Australia to increase overall documentation and understanding of this variation; this report focuses on the composition of territorial groups and demography. Mean annual population density was 0.45 birds/ha and the mean annual adult sex ratio (males per female) at the start of the breeding season was 1.03. Emigration, immigration and within-population dispersal were all at relatively low levels. The main *identified* mortality agent of fledged individuals was collision with vehicles, but mean annual adult survival rates were high (~90% in both sexes). The most common numbers of adults in a territorial group were 1 and 4-7 males and 1 and 2 females, and many different combinations of numbers of adult males and females in a group were recorded within and among years. Magpies spent from 1-3 to 11-12+ years as a member of a group(s), but there was some adult membership change in a group in a mean of 80% of study years. The results showed some similarities to, and disparities with, the sociality and demography of magpie populations elsewhere in Australasia. The balanced *mean* adult sex ratio contrasted with the female-biased ratios typical of most bird species, although the ratio varied considerably among years. Both balanced and sex-biased adult sex ratios have been reported in other magpie populations. The considerable variation within and among groups in the numbers of adult male and female members resembled that recorded in other Australasian populations. The limited extent of intra- and inter-population dispersal contrasted markedly with that in many other magpie populations and could possibly reflect a relative lack of successful settlement options for dispersing individuals and/or a relatively high resource level in the natal area at Guildford. As in many other bird species, dispersal was female-biased, but male-biased dispersal has been recorded in the literature for another magpie population. The mean annual survival rate was very high in both sexes, which could reflect the low level of costly and risky dispersal recorded.

Keywords: Western Magpie; group composition; population size; sex ratio; survival and recruitment; dispersal