# A genetic and behavioural investigation of extra-pair copulation in stitchbirds *(Notiomystis cincta)* breeding on Tiritiri Matangi Island

by

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# Abstract

Minisatellite DNA fingerprinting was used to assign parentage to nestlings produced by stitchbirds breeding on Tiritiri Matangi Island. Analysis revealed that 35% of nestlings were the result of extra-pair copulation (EPC) and that extra-pair young were present in 80% of nests. These results show that an individual's realised reproductive success is very different than that predicted from social relationships alone. Approximately half of the extra-pair fertilisations were by unpaired males. This is in contrast to the general trend in bird literature, which suggests extra-pair paternity is the result of copulations by males paired with other females.

EPCs are resisted by females, hence EPC is assumed to be a male-driven reproductive behaviour. Extra-pair males concentrate their copulation attempts at peaks in female fertility. Regular visits made to nest boxes by extra-pair males may provide a cue to female fertility. Behaviour of extra-pair males suggests they also focus attempted EPCs on females at nest sites. Paired males attempt to defend their paternity by defending an area around the nest site by territorial calling and displacing intruding males. These paired males spend a majority of their time near the nest site, both when the female is present and absent.

The frequency of EPC attempts varied substantially between nests, and these attempts were often witnessed by the paired male. This variation mirrored closely the variation in the percentage of extra-pair paternity. The level of nest provisioning by males was strongly correlated with the frequency of attempted EPCs, and was less strongly correlated with actual paternity. This suggests that paired males assess their paternity using behavioural cues rather than actually discriminating related from unrelated offspring.

Although this thesis focuses on fundamental research, it is closely aligned to stitchbird conservation. The final chapter details management protocols used while monitoring stitchbirds for the first 18 months following translocation to Tiritiri Matangi. It details all management techniques believed to be important for gaining knowledge about the success/failure of this translocation, increasing public participation, and increasing the chances of success in establishing a self sustaining population.

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