

Logue, D.M. and D.E. Gammon. 2004. Duet song and sex roles during territory defense in the black-bellied wren, *Thryothorus fasciatoventris*. *Animal Behaviour* 68:721-731.

A diverse array of bird species show a behaviour known as duet singing, in which mated pairs sing temporally coordinated songs. Several studies have shown that simulating territory intrusion with conspecific song playback evokes duet song from duetting bird species, but the adaptive significance of coordinated song during territorial defence remains unclear. The function of duetting is further obscured by our poor understanding of the roles of the sexes in territory defence among year-round territorial species. We developed a simple optimality model that predicts the conditions under which intersexual territorial defence is most likely to occur. We used male solo song and female solo song playback as well as a novel method called 'stereo duet playback' to test the predictions of the model and to explore the function of song initiation and song answering during territorial encounters. We conducted these experiments in the field on the black-bellied wren, a year-round territorial passerine. Birds of both sexes responded to all treatment types. Males initiated more songs during opposite-sex playback than during same-sex playback and both sexes were more likely to answer their mates' songs when mates were physically closer. We argue that the acoustic mate-guarding hypothesis does not adequately account for these results, and suggest that duetting during territorial encounters allows mates to identify one another, thus preventing intrapair aggression. As predicted by our model, females showed a strong same-sex bias in territory defence, whereas males approached playback of both sexes. Also in support of the model, males with dependent juveniles showed stronger intersexual territoriality than males not involved in a breeding effort.