

## Supplementary Material

### Playback method

During playback trials we ran Syrinx playback software (J. Burt, [www.syrinxpc.com](http://www.syrinxpc.com)) on a laptop computer connected to a directional microphone and a loudspeaker. Subjects' songs were visualized on a real-time scrolling spectrographic display and playback responses were chosen from one of three libraries of digitized playback stimuli (*SI*). During playback trials, we simulated either an aggressive or submissive male intruder. Aggressive playback trials were patterned after escalated vocal exchanges and simulated an intruder of high quality relative to the playback subject; we overlapped every song given by the subject and matched the frequency of the subject's songs. Submissive playback trials were patterned after de-escalated vocal exchanges and simulated an intruder of low quality relative to the playback subject; we delayed playback responses and avoided matching the frequency of the subject's songs. Only the pitch and timing of playback responses, not the absolute playback output, varied between aggressive and submissive trials. The 6.0 minute playback trials were repeated to both the high-ranking and low-ranking males in each dyad on two successive days.

Rank was determined by observing the outcome of dyadic interactions at winter feeders. We defined high-ranking males as the topmost ranking male in flocks of two or three males, or the topmost ranking two males in flocks of four males. We defined low-ranking males as the lowest ranking male in flocks of two or three males, or the lowest ranking two males in flocks of four males.

### Reference

S1. D. J. Mennill, L. M. Ratcliffe, *Bioacoustics* **11**, 77 (2000).

### Supplemental Table 1.

Male behaviour did not change following interactive playback sessions. Playback subjects and their partners were observed for 30 minutes prior to playback and 30 minutes on the morning following the second day of playback. No differences between pre-playback and post-playback behaviour are significant in any of the four groups (one way analysis of variance, all  $P$ s > 0.22), suggesting that changes in female reproductive decisions resulted from information gained through eavesdropping (in so far as these measures are capable of detecting changes in male behaviour that may cause females to seek extra-pair copulations).

		High-ranking Males		Low-ranking Males	
		Experimental: Aggressive Playback ( $n = 20$ )	Control I: Submissive Playback ( $n = 7$ )	Experimental: Submissive Playback ( $n = 15$ )	Control I: Aggressive Playback ( $n = 4$ )
Proportion of observation period male spent singing*	Pre-playback:	0.51 ± 0.32	0.54 ± 0.43	0.28 ± 0.40	0.11 ± 0.64
	Post-playback:	0.38 ± 0.37	0.49 ± 0.34	0.32 ± 0.33	0.21 ± 1.09
Number of nuptial feeds male provided to female	Pre-playback:	0.69 ± 1.86	0.43 ± 1.21	1.24 ± 2.05	0
	Post-playback:	0.98 ± 1.87	0	1.23 ± 2.14	0
Number of male copulation solicitations	Pre-playback:	1.00 ± 1.53	1.44 ± 1.68	1.21 ± 1.65	0.40 ± 1.86
	Post-playback:	0.72 ± 1.07	1.90 ± 2.04	1.11 ± 1.80	0
Number of within-pair copulations	Pre-playback:	0.65 ± 1.62	0.68 ± 0.94	0.84 ± 1.23	0.40 ± 1.86
	Post-playback:	0.57 ± 1.03	0.98 ± 1.67	0.75 ± 1.63	0

Data shown are means ± SDs

\*ANOVAs conducted on arcsin transformed data