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RESPONSE OF WESTERN BRISTLEBIRDS TO CALL PLAYBACK

Allan H. Burbidge and G.T. Smith

Summary

A preliminary analysis suggests that Western Bristlebirds are more likely to approach the source of a known (their own or a neighbour's) than an unknown call. This is in contrast to many species of birds, which are equally or more likely to respond to a stranger. If this analysis is correct, attempts to catch Western Bristlebirds are more likely to be successful if attempts to attract a given individual utilise a call which is known to that individual.

See note on p. 3

Introduction

The Research Plan for the Western Bristlebird (Cale and Burbidge 1993) includes proposals for translocation of the species to new sites. In order to do this, it is essential to have an efficient and effective catching technique. With rare ground-dwelling birds such as bristlebirds, it is generally necessary to attract particular individuals to the trap site, and the playback of recorded songs is an obvious mechanism to do this (eg Marion *et al.* 1981).

Many bird species have individually recognisable songs (eg Saunders 1983, Saunders and Wooller 1988, Bruce 1988). This makes it possible for an individual bird to recognise its own song and those of its near neighbours, and to differentiate these from the song of (unknown) birds from further away. Birds that have this ability may respond differently to songs of neighbours compared with songs of unknown birds. This leads to the possibility that playback of known calls may be more effective at attracting a bird to a trap site, or *vice versa*. A number of factors influence response to playback, and species and individuals within species vary in their response to playback (Johnson *et al.* 1981). In a number of species, such as Ovenbirds (Weeden and Falls 1959) songs of unknown individuals evoke a stronger response than do songs of known individuals.

The present project was an attempt to determine whether Western Bristlebirds respond differently to the playback of different types (own, neighbour, unknown) of recorded calls, so that trapping techniques for this species can be improved.

Methods

Sites

All playback experiments were done at Two Peoples Bay Nature Reserve or at the nearby Goodga River reserve (Figure 1) from 25 August to 1 September 1995.

Calls

Calls used for playback were recorded at Two Peoples Bay in previous years (particularly a call made at Tick Flat in 1994) or recorded in the field during the course of this project. Calls were recorded on a professional model Sony Walkman or Marantz Superscope using directional microphones. Calls were played back using one of these machines. Noise was a particular problem, as there was frequently wind and/or wave noise in the background. Some taped calls were therefore edited using the software program Coolwave (© 1992-1995 Syntrillium Software) to filter out some of this noise. Although no rigorous tests were made, this did not appear to alter significantly the call itself or the response by the birds.

Procedure

At sites where Western Bristlebirds were known to occur, six 'A' calls were played five times at 1 minute intervals. Because of the secretive nature of Western Bristlebirds, it was often not certain whether the playback location was near the boundary of, or in the centre of, a home range. Responses were recorded if they occurred within the period from the beginning of playback up to 1 minute after the last playback sequence. Once the experiment was complete, the observer moved to another home range at least 300 m distant.

Responses

In this study, it was assumed that a response was obtained if the subject bird called, moved toward the source of the playback equipment or was seen close to the observer. If the subject bird responded with calls, a record was made of whether 'A' calls, 'B' calls (ref) or other calls were heard. Approach of the subject bird was judged by the source of calls coming closer to the observer or by a bristlebird being seen close to the observer.

Results

	calls		X^2 (P)
	own	near neighbour's	
heard to call	11	13	0.02 (P > 0.75)
not heard	4	7	ns
approached	9	7	1.3 (P > 0.25)
unknown	6	13	ns
seen	6	4	0.84 (P > 0.25)
not seen	9	16	ns

Table 1: Responses of Western Bristlebirds to call playback (n = 35) using the subject bird's own calls compared to responses to playback of calls of a neighbouring bird. See text for details.

A total of 62 playback experiments were conducted (16 using the bird's own call, 20 using a neighbour's call and 26 using a call believed to be unknown to the subject bird). Most (47) experiments were carried out by AHB, with the remaining 15 being carried out by GTS during the course of trapping attempts. The experiments were spread over 30 different home ranges.

	calls		X^2 (P)
	own	other	
heard to call	11	28	0.43 (P>0.5)
not heard	4	19	ns
approached	9	13	3.9 (.05>P>.025)
unknown	6	34	sig.
seen	6	6	3.8 (P = .05)
not seen	9	41	sig.

Table 2: Responses of Western Bristlebirds to call playback using the subject bird's own calls compared to responses to all other calls (n=62). See text for details.

The comparison between responses by subject birds to their own calls compared with neighbour's calls are categorised in Table 1. In each case, the response was slightly greater following playback of the subject bird's own calls (Table 1) but none of the differences were significant. Comparisons between responses to the subject bird's own calls compared with responses to all other calls (Table 2) and known calls (own, neighbours) compared with unknown calls (Table 3) were more interesting. Again, the response was slightly greater following playback of the subject bird's own calls, but these differences were not significant in the case of response measured by calling (Tables 2,3). The results were, however, statistically significant for two parameters (whether the bird approached the observer, and whether the bird was seen) using χ^2 tests (Tables 2 and 3).

	calls		X^2 (P)
	known	unknown	
heard calling	25	14	0.98 (P>0.75)
not heard	11	12	ns
approached	17	5	4.0 (.05>P>.025)
unknown	19	21	sig.
seen	11	1	5.3 (.025>P>.01)
not seen	25	25	sig.

Table 3: Responses of Western Bristlebirds to call playback using calls known (own or neighbour's) to the subject bird compared to responses to unknown calls (n=62). See text for details.

Note: Interpretation of these results is confounded by the fact that we did not know where the territory boundaries were; playback from a territory boundary might produce a different response from playback in the centre of a "core area". Our conclusions might therefore be invalid. Alan Bridge 9/5/05

Discussion

Western Bristlebirds are more likely to respond to playback of a call which they know (their own or a neighbour's) than to an unknown call. In particular, they are more likely to approach the source of a known than an unknown call. This is in contrast to the findings of a number of other studies comparing neighbour/stranger responses. For example, Harris and Lemon (1976), Baker *et al.* (1981) and Wunderle (1978) found that, following playback at or near the territory boundary, Song Sparrows (*Melospiza melodia*), White-crowned Sparrows (*Zonotrichia leucophrys*) and Yellowthroats (*Geothlypis trichas*) all discriminate between the songs of neighbours and strangers, and respond more strongly to the songs of strangers. However, Wunderle (1978) also found that when playback was carried out near the centre of a Yellowthroat territory, there was no significant difference in response to neighbour and stranger calls.

On the basis of the results reported here, attempts to catch Western Bristlebirds are likely to be most successful if call playback involves a call sequence from an individual known to the bird being pursued.

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