

ANIMAL SOUNDS RESEARCH -  
NOISY SCRUB BIRD

Mr. F.N. Robinson, Experimental Officer, Division of Wildlife Research, C.S.I.R.O. is in the process of carrying out research work on animal sounds at the Two People Bay reserve set aside for the conservation of the Noisy-scrub bird. Mr. Robinson has the use of a field laboratory established at Two People Bay. Recently he expressed his appreciation to the Minister for Fisheries and Fauna, Mr. G.C. MacKinnon, for the assistance and encouragement given to him by officers of the Department. In commenting on this reserve at Two People Bay, Mr. Robinson said, that, with its rich and rare fauna and flora, and magnificent scenery, it must be one of the finest anywhere in the world and considered it both a pleasure and a privilege to work there.

Mr. Robinson's speciality of research is the recording and analysis of animal sounds, in particular the Noisy-scrub bird. He is mainly concerned with the origins, evolution and meaning of passerine bird song and its relation to the breeding cycle and the relevant environmental factors.

Two types of sound recordings are involved. First, high quality recording of individuals, for spectrographic analysis and secondly automatic measurement of daily song output by means of automatically operated tape recorders which record for short periods at regular intervals. A typical interval is a 10 second recording every six minutes. When the tapes are replayed, Mr. Robinson can make a quantitative measurement of the daily output of song and an accurate estimate of the date of egg-laying. Some of Mr. Robinson's research colleagues are also using this automatic recording technique to trace the movements of nomadic or migratory species by establishing recording stations at suitable places. The recorders run for four weeks without attention.

In 1961 the Division of Wildlife Research, C.S.I.R.O., established an acoustic laboratory. Its aims are threefold: first to provide a technical and scientific advisory service in this field to other units of the Division; second to investigate the possibility of using sound signals to communicate with animals; and third to study the structure and meaning of vocal communication in animals.

"A study of the use of vocal mimicry in the superb lyrebird has shown that the mimicked sounds are carefully selected for their acoustic properties, and that the production of these sounds by the lyrebird functions as a highly directional sound beacon, enabling females and rival males to locate a singing male at a considerable distance in dense vegetation. Loud and sustained song is an important factor in breeding success, and mimicry adds both individuality and variety to a basically simple song which would become monotonous with repetition. This extensive use of mimicry of the songs and calls of other birds is made possible by the fact that the superb lyrebird breeds in mid-winter, so that at the peak of the song cycle the species mimicked are virtually silent. Calls of birds which are vocal during the winter months rarely occur in the lyrebird's repertoire.

These observations suggest that mimicry is an important factor in the evolution of bird language and has prompted a comparative study of mimicry in the songs of the superb lyrebird, the Albert lyrebird, the rufous scrub bird and the noisy scrub bird. All of these have a rather simple syrinx, but are capable of reproducing a variety of complex sounds, most of which are copied from the calls of other species.

Already this study has demonstrated that the different songs of these four related species represent different stages in the evolution of the complex coded message which is contained in modern passerine territorial song, ranging from the short, simple stereotyped song of the rufous scrub bird to the more sophisticated and individually variable song of the noisy scrub bird. The causes of this type of evolution appear to relate to the gradual crowding of the acoustical environment due to the increasing numbers of species using vocal communication.

The development of using for the first time an automatically-operated tape recorder to obtain a quantitative measure of the male breeding cycle by recording the daily output of bird song, together with parallel measurement of environmental factors, such as temperature, rainfall, and soil moisture, provides an entirely automated method of assessing the breeding cycle and its causation.

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You'll find us rough, Sir, but you'll find us ready.

- C. Dickens.