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A METHOD OF AUTOMATICALLY RECORDING BEHAVIOUR AT THE NEST SITE

Direct observation of an adult bird's behaviour around the nest site is often very difficult and time consuming, and the presence of the observer may affect the bird's behaviour. Data may be required for estimating the time spent on incubation and brooding; and for determining the periods of activity when the parents feed their progeny. The problem of direct observation is greatest with crepuscular or nocturnal species such as the Australian Owlet-nightjar *Aegotheles cristatus.*

This paper suggests the possible use of a recorder that is reliable, portable and able to withstand the rigours of use in the field, and that would supplement direct observation. The recorder is a Stevens Digital traffic recorder — Model 7051. Its normal use is in preparing traffic censuses. It operates by a 12 volt rechargeable battery. With the recorder one can select pre-set time intervals, from five minutes up to sixty minutes in five minute intervals. Therefore a record of the sum of the number of events in the selected period can be obtained. The standard pneumatic switching gear is easily removed as it is unsuitable for this type of behavioural study. In its place a SUNX132 12 volt infra-red retro-reflective switch is attached by a 20m three strand wire cord. This switching gear can be adjusted to record any object passing in front of the infra-red beam. The only requirement of the apparatus is that the animal passes in front of the infra-red beam. In field trials from October 1980 to January 1981 the equipment was unaffected by the climate. The range of climates experienced at that time of year included heavy rain and a temperature range of 10° - 40°C. The advantage of this recorder is that it is not a new development, but a modification of a standard piece of equipment. Consequently the recorder has had extensive field trials and has proved to be serviceable in a variety of conditions. Previously published papers concerning recorders of bird behaviour have either been specially developed (Kendeigh & Baldwin 1930) or are somewhat questionable in operation (Marples & Gurr 1943). Marples & Gurr (1943) state that after continuous use of the wooden perch of their recorder was swollen by rain and ceased to operate. Although relatively expensive the recorder could possibly be borrowed from local authorities concerned with censusing traffic or from Engineering departments of tertiary institutions. The current cost for the 7051 recorder is $1485, but this model has since been superceded by the 7951 model at a cost of $1295 (pers. comm. Arthur Baker & Sons distributors, Melbourne).

Field trials were carried out in an area of woodland within the Ballarat College of Advanced Education campus (37° 35'S, 143° 55'E). Throughout this area a number of nest boxes have been established. In 1979 and 1980 some of these were successful as nesting sites for the Australian Owlet-nightjar and Crimson Rosellas *Platycercus elegans.* Each box was securely attached to a tree, approximately 4m above the ground. Once it had been established that a pair of birds was breeding in a particular nest box, the Stevens recorder was chained to the support tree (to prevent theft) and the SUNX132 retro-reflective switch attached beside the entrance hole. It was assumed that during incubating, brooding and feeding, only the parent birds would enter or leave the

nest. Direct observation the nest site supported the fact that only the parent birds were near the nest box during breeding.

The total number of events for each selected time period (e.g. 60 minutes) was recorded by holes punched in a roll of paper tape. Each event was an interruption of the infra-red beam such as when a bird entered or left the nest hole. The paper tape could be removed at convenient times and analysed against real time. Field trials of the apparatus were also conducted using nesting Crimson Rosellas.

In both the field trials the species successfully reared fledged young. It appeared that the presence of the recorder and the switching gear had little or no effect on parental behaviour.

The pre-selected time intervals enable subtle changes in the frequency of nest visitation behaviour to be recorded and these could be related to climatic conditions. However, it should be noted that the shorter the time interval selected, the greater the power drain from the battery and therefore the more often it would be necessary to change the battery.

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A NORTHERN TERRITORY SPECIMEN OF HUTTON'S SHEARWATER

The recent revelation that Hutton's Shearwater *Puffinus huttoni* migrates into the northern Indian Ocean (Halse, 1981, Emu 81: 42-44) together with Warham's suggestion (1981, Emu 81: 44) that pre-breeding birds may circumnavigate Australia is supported by the recent discovery of a live but exhausted bird in Katherine, Northern Territory. The bird was found early in the morning of June 6, 1981 and handed to the Conservation Commission by Ms. P. Kerr. It was later prepared as a study skin and lodged with the Northern Territory Museum (Reg. No. T1001). Identification as *P. huttoni* was based on size (wing 226 mm., exposed culmen 37.2 mm), the heavy grey brown suffusion on the neck and the grey brown axillaries lacking white tipping. The specimen was a female with a straight oviduct and an immature ovary lacking developed follicles. Its fresh weight of 267 g is considerably lighter than the mean weight of 364.1 g derived from seventeen birds weighed on the breeding colony (Harrow, 1976, Notornis 23: 269-288). The specimen collected at sea off north-western Western Australia was also much heavier in weight, 370 g (Halse, loc. cit.). Despite the seemingly exhausted state of the bird and its extremely light weight, post mortem examination showed moderate amounts of subcutaneous fat present. Only the body feathers were moulting.

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