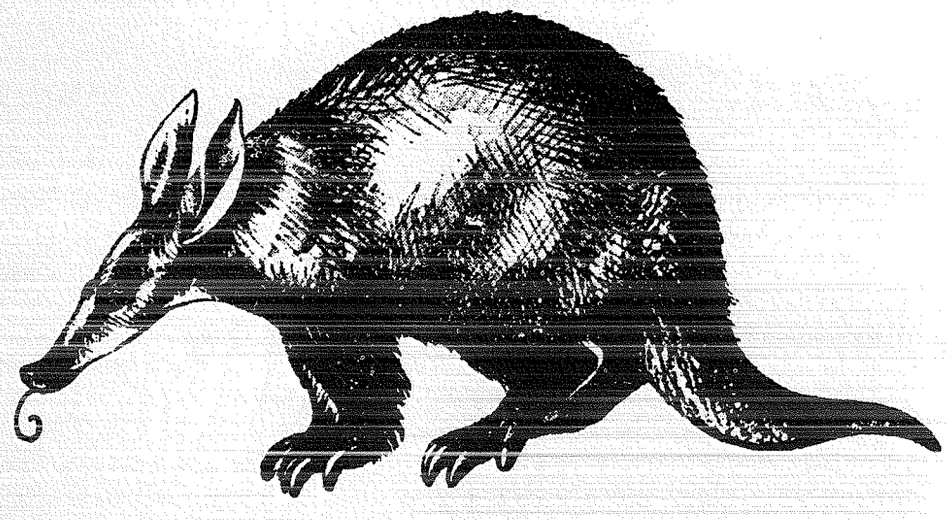

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BAT BANDING IN SOUTHERN AFRICA.

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The nocturnal way of life of bats, and the difficulty of keeping them (especially the insectivorous species) in captivity, have largely handicapped studies of their behaviour. In Europe and North America it was supposed that bats migrated to warmer climates during the winter. A.A. Allen (1921), apparently inspired by the success of the ornithologists with bird ringing, was the first person to ring bats. Bat banding proved practical when three of the four bats which he had ringed at Ithaca, New York, during the summer of 1916 returned to the ringing site three years later.

Different methods of marking bats were tested, e.g. Allen (1921) used bird rings on the legs of the bats and other workers used ear tags (Mohr, 1934) or tattooed the wing-membranes (Griffen, 1934), but bird rings attached to the forearm, as used by Eisentraut since 1932, proved to be most successful.

Bat banding programmes commenced after this in several European countries during the 1930's, and in Devon, England, only during 1947. The Transvaal Museum Bat Banding Committee was formed during 1958 under the chairmanship of Dr. V. FitzSimons; two of the foundation members, Mr. R.B. Copley and Dr. J. Meester, are still active banders. Regional representatives for Natal, the Cape and Rhodesia were appointed at a later stage. During 1962 the number of bat banders dropped to nine after suggestions that some of our bats, although they do not have vampire-like tendencies, may be the carriers of rabies.

Banding activities have been mainly restricted to cave-dwelling species. Bats of 14 species have been marked to date. In all, there are 50 species of insectivorous Microchiroptera in Southern Africa, and 5 species of fruit-eating Megachiroptera, of which only one is known to be a cave-frequenting. Some of the species are known by only a handful of specimens. One, the horny-skin red bat Eptesicus (Rhinopterus) noticus Allen, 1908, the sole member of the subgenus, is represented only by the type specimen from Cape Town. Although some other species may not be represented by long series in museum collections, they are known to be found in their thousand in caves throughout the country. These are the species mainly banded in this campaign. The banding and recapture records covering the period September 1958 to September 1965 are summarized in table 1.

Recovery records up to now indicate various migration patterns for the different species. Most of the horseshoe bats show only local migration between caves in a certain area, eg. the various caves around Pretoria. On the contrary, it seems as if Rhinolophus hildebrandti hardly migrates at all. It is, for instance, only found in one of the four caves in the Makapans valley. Although Myotis tricolor is absent for long periods from the caves being studied we do not have any records of its movements as it was never recovered from anywhere other than the ringing site.

The Natal clinging bat, Miniopterus schreibersi, migrates over long distances. Recapture data exist indicating movements between the Pretoria- Uitkomst area, Sandspruit I cave (Rooiberg) and Makapans valley. From Uitkomst to Makapans valley is approximately 130 miles. Natal clinging bats from Kimberley, banded and released at Pretoria in a homing experiment, were observed back at Kinberley a fortnight later (R.B. Copley, pers. comm.), a distance of 260 miles. Two of these bats were recaptured at Kimberley within a year. Furthermore, Natal clinging bats have been recaptured in the 'hibernating'

caves during successive winters. The clinging bat not only migrates but also forms maternity colonies. The hibernating and nursing colonies are not necessarily in the same caves. The sex ratio of the clinging bat varies remarkably in the 'breeding' caves throughout the year. This is striking when records from the caves in which they mainly hibernate are compared with those from caves in which they also breed (Uitkomst vs. Rooiberg records). In the Rooiberg caves clinging bats are mainly found during the summer while they occur at Uitkomst in their thousands from April to early August, with not more than a hundred, or none at all, during the remaining months. The males represent about 30 per cent of the population at Uitkomst throughout the year but in the Rooiberg area the ratio varies from 3 per cent males during December-January to 100 per cent from March to October.

The total number of bats banded, as shown in table 1, gives a fairly good idea of the relative abundance of the species of bats found, except in the case of Miniopterus, where the number banded is comparatively low.

The percentage of bats recaptured (table 1) varies from species to species, e.g. in Rh. blasii and Rh. hildebrandti it is close to 50 per cent of animals banded, in Miniopterus only 3.1 per cent and in some species there are no recaptures at all. The migratory habit of Miniopterus and other species certainly is one of the reasons for the low recovery rate. The majority of recapture records come from the banders but a surprisingly high number of recovery records have been received from private persons.

Another important aim of bat banding is to determine the longevity of bats, which cannot be commented on at this early stage. However, bats have already been recaptured 5 years after banding.

The success of bat banding lies in the persistent continuation of banding and recapture over years. As banding of bats is largely done over weekends and, to a great extent, without financial assistance, banding, and thus also recapture, has not always been carried out at regular intervals. This is an important factor and banders should ideally live close to the areas in which they band. At present this is not always possible because of the uneven distribution of banders throughout the country. Banding in South West Africa and northern Cape actually depends on visits by one of the Pretoria banders. Apart from the ability to identify the species present in the caves, the most important asset for a bander is persistence and determination.

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