

THE WING BANDING METHOD IN THE STUDY OF THE TRAVELS OF BATS

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In recent years there has been aroused among mammalogists a considerable interest in the study of the travels of bats in eastern North America. Two methods of marking bats for later recognition have been employed—ear tags similar to the fingerling tags used on fishes (Mohr 1934) and bird bands of the Fish and Wildlife Service around the legs (Griffin 1940).

In the past five years, we, together with William A. Wimsatt who has been our constant companion on bat collecting trips, have banded approximately 5000 bats employing yet another method. While we are not yet prepared to present the results of our work on the movement of northeastern cave bats, this preliminary report on the technique of wing banding has seemed advisable due to the increasing interest in the subject.

There are two principal disadvantages to the method of leg banding employed by Griffin. As Griffin (1945) points out, the bands become overgrown with flesh and it becomes difficult or impossible to read the numbers. Secondly, in attempting to make recoveries of banded bats in the dense clusters characteristic of cave hibernating bats, leg bands may only be found after the clusters of bats have been taken down and individually examined. In caves supporting populations of thousands of bats this is an unnecessarily lengthy and tedious procedure.

The ear tags employed by Mohr are expensive and must be privately prepared to order.

In our studies over the past six years we have used the bird bands of the U. S. Fish and Wildlife Service but placed them around the distal portion of the forearm. We have worked principally with the little brown bat, *Myotis l. lucifugus*, and found bird bands of size number 0 to be satisfactory. The

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membrane from the shoulder to the forearm is so narrow near the wrist that the bands may be slipped around the forearm without interfering with this membrane. Bands thus located are in position beside the head of the bat when it is

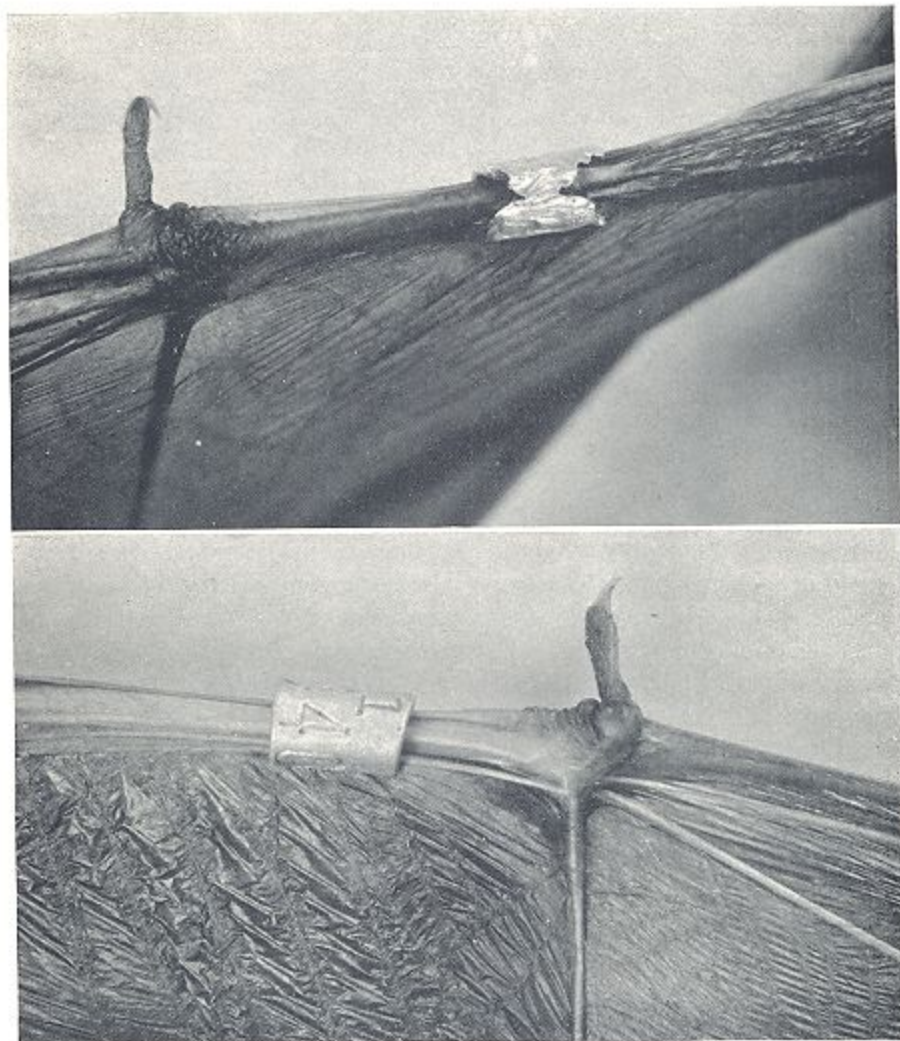


PLATE 1

The little brown bat (*Myotis l. lucifugus*) showing the results of improperly and properly placed wing bands after 4½ years. UPPER: The band in this photograph was pinched tightly around the forearm. The bat has almost completely chewed through the aluminum band. LOWER: This band is free to slide along the forearm and has been wholly undisturbed by the bat. Photographs by A. L. Smith.

at rest. They may usually be readily perceived in the light of an electric torch or headlamp when glancing over clusters of bats in caves. When the clusters are densely massed all bands may not be apparent, but by stirring the bats

slightly they usually move sufficiently to show any that may be wearing wing bands.

Since this technique may have wide application in the future there is one precaution which should be mentioned to avoid a difficulty we have encountered. It was our ordinary procedure to pinch the bands tightly together on either side of the wing membrane, so that the bands would not be free to slide along the forearm. The bands were of sufficient diameter so that no pressure on the bones of the forearm or the blood vessels along them was apparent. Nevertheless we have encountered not only an overgrowth of flesh about the bands, but also in some instances they are chewed so that the numbers are no longer legible. It is apparent that the bands pinched together on the wing membrane produce sufficient discomfort so that the bats often attempt to chew the bands loose. An extreme case of this sort is shown in Plate 1, upper, a marked bat recovered $4\frac{1}{2}$ years after banding.

In the case of some of the bats the bands were inadvertently not closed with sufficient force to secure a grip on the wing membrane. We have found to our surprise that these bands while they are free to slide along the forearm seem to cause no discomfort, and bats thus banded make no attempt to chew the bands. Such bands are found to be without so much as a scratch after several years. Plate 1, lower, illustrates such a band in place after $4\frac{1}{2}$ years. It would seem that the wing motion of the bats in flight tends, by centrifugal force, to keep the band in the most distal position on the forearm and the flight is not impaired by the loosely clasped band. In the wing banding of bats it is therefore indicated that the bands should be closed around the forearm so as to encompass the bones, but leaving a sufficient aperture to permit the band to slide freely along the forearm without pinching the wing membrane.

That wing bands might seriously impair the flight of bats is a matter we have considered and rejected since we have recovered bats banded by this method after five years and after performing flights upward of 200 miles from the point of release.

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