

victors, the pair returned to their nest in a honeysuckle hedge on the front lawn, and a little later I saw the left-banded thrasher feeding on the back lawn. Presently it flew up to a tree and gave the piteous notes of a thrasher whose nestlings are threatened. This brought the pair around to renew the attack, and the two who were believed to be females tumbled to the ground. Facing one another, each leaped forward and up, perhaps a foot into the air, and after a moment one thrasher turned and ran away. This settled the matter, and the left-banded thrasher retired to the back garden area just north of its former territory, and on May 21 was trapped and found to be 37-308978. In the three preceding summers I had not distinguished the old pair as to sex, but from its behavior in the contest with the occupants of the dooryard, now believed this bird to be the female; the old male never re-appeared. In the north territory thrasher 37-308978 probably took a new mate and reared one brood before the accident to its wing. Due to the size and type of this area, and the confusion of neighboring thrashers coming in for water, an accurate check was not possible.—MRS. ROWLAND THOMAS, Route 3, North Little Rock, Arkansas.

Song Sparrows Apparently Mated for Four Seasons.—On July 20, 1937 an adult Eastern Song Sparrow (*Melospiza m. melodia*) was trapped. Because of its small tarsi, a No. 1 band (37-87678) was attached. One week later, on July 27, 1937, another adult was captured in the same trap, and a No. 1A band (37-161846) was attached. During the intervening time three immature Song Sparrows had been captured as well as two other adults, all of which were banded, but none of which has ever been heard from again except as they repeated during that summer.

July 28, 1938 brought 37-161846 back to my trap as a return, and two days later 37-87678 was also captured. Three immature Song Sparrows were also trapped, but not even one single adult.

While trapping in exactly the same locality, I captured 37-87678 as a Return-2 on July 11, 1939, and on July 15, 1939, 37-161846 entered the same trap, also as a Return-2. On this occasion two other adults were trapped, but no immature birds were taken.

My trap was set in the same spot again last summer. On July 26, 1940 it held a single unbanded adult Song Sparrow. The following morning I found three Song Sparrows in it. One was another unbanded adult, but the other two were 37-87678 and 37-161846. They had returned together for the fourth consecutive summer, this time to be captured simultaneously.

Whereas I had no opportunity to study the activities of these two birds intimately, and have, therefore, no proof that they were mates, the observations that I was able to make certainly indicate that such was the case. All of these observations were made in Millbridge, Maine.

In passing, it might be noted that here is an example of the successful use of two different band sizes on the same species of bird.—G. HAPGOOD PARKS, 99 Warrenton Avenue, Hartford, Connecticut.

NOTES ON TECHNIQUE

A DEVICE FOR OPENING SMALL BIRD BANDS

A good deal of time can be saved in banding large numbers of animals if, instead of opening each band on the spot, one has a supply already opened. Bookkeeping can be simplified if separate series of bands are used for the two sexes. With these two points in mind the apparatus described below (Figure 1) was devised for use in banding large numbers of bats and Chimney Swifts. Although this system involves equipment somewhat more elaborate than the conventional pliers or spreading stilleto, it is easily made, does not get out of order, and takes up little space in one's banding kit. With it one can spread 500 bands in an hour or less. Dimensions given are for band size no. 1, but by altering the measurements the apparatus could be adapted for use with sizes 0 and 1A.

Spreading plate. A piece of $\frac{3}{8}$ " brass, 2" x 4", is drilled through with two rows of ten holes each, the holes being made with a no. 17 drill (Starrett drill gauge). A strip of sheet metal is then soldered to the bottom of the plate. The holes are slightly reamed at the top to facilitate inserting and withdrawing the bands. All sharp edges are smoothed off with a file.

Spreading rod. A $\frac{1}{8}$ " solid brass rod about 7" long is tapered at one end to slightly less than the inside diameter of an unopened band. The taper should not extend more than $\frac{3}{16}$ ". Above the taper the rod should be left in approximately its original diameter for about half an inch, and the remainder slightly reduced by polishing with a fine emery cloth. A slight concavity is drilled into the untapered end. The entire rod should be polished smooth to prevent the bands from becoming scratched as they pass along it.

Storage rod. A piece of no. 9 iron wire (B and S standard wire gauge) about 25" long is straightened and its ends filed or ground to a point. This rod will hold 100 spread bands. To keep the bands from slipping off the ends, small rubber discs are cut from inner tubes (thick tubes for trucks are best) and a small hole burned through their center with a hot needle. Puncturing the rubber with a pointed instrument is less bother than burning it with a wire, but such discs do not grip the rod tightly and are apt to tear when subjected to strain.

Opening the bands. Bands are removed from the original package wire and are placed in order in the holes of the spreading plate. It makes no difference at which end of the string one starts as long as the bands are removed in order, for they can be removed from either end of the storage rod. The spreading rod is now pushed down into the first hole, spreading the band. The band sticks to the rod,

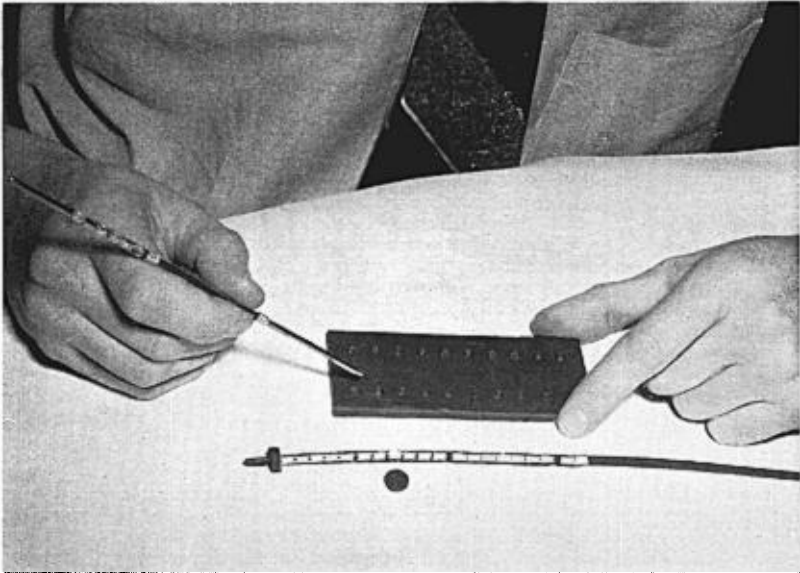


FIG. 1. The spreading rod, spreading plate and storage rod are shown in use. The spreading plate has been emptied once and the first twenty bands transferred to the storage rod. Note that all bands on the storage rod have similar orientation.

and should be pushed toward the opposite end by grasping it between the thumb and first finger of the free hand. One is tempted to let the second band push the first one along, but this is apt to cause the bands to spread unevenly. When the first twenty bands have been opened, they should be pushed from the spreader onto the storage rod, the pointed end of which fits into the concave end of the spreader. Although the bands bind somewhat on the spreader, they slide freely on the storage rod.

Since twenty bands are accommodated at a time on the plate, one knows at once if any are missing from an envelope (as sometimes happens) when the plate is not completely filled on the fifth round. Bands tend to assume similar orientation on a rod held horizontally, enabling one to check all of them for numbering with minimum inconvenience.

Banding operations. If adult Chimney Swifts in which age and sex are not distinguishable are being banded in large numbers, it is most convenient to empty the bands from the storage rod into a dish instead of taking them off individually, until only a few birds remain unbanded. Where sexes can be differentiated, as with bats, one series of bands can thus be used for the males and another for the females. When only a few bands are being used at a time, the storage rods can be stuck into the ground and the bands removed from the free end.

I am indebted to Mr. Fred Pye of the University of Western Ontario for suggestions and assistance in making this apparatus.—HAROLD B. HITCHCOCK, University of Western Ontario, London, Ontario.

RECENT LITERATURE

Reviews by Margaret M. Nice

BANDING

1. Ecological Study of European Ringing Results on the Lapwing. (Oecologische bewerking van de Europese ringgegevens van de Kievit (*Vanellus vanellus* (L.)).) W. K. Kraak, G. L. Rinkel and J. Hoogerheide. 1940. *Ardea*, 29: 151-174. Ireland, Spain and Portugal are the most important winter quarters of the European population of the Lapwing. Apparently not all of the first year birds breed. Charts are given to illustrate migration and mortality, but it would have been well to have had a table also for the latter subject. Retakes of 1333 birds banded as nestlings show a very constant mortality percentage. The number of birds of a certain age seems to be always 0.6 the number of birds that are one year younger. Old age plays no role; a Lapwing of 14 years is not old. Of a population of birds 40 per cent will be yearlings, 24 per cent 2 years old, etc. This corresponds exactly with my findings on the Song Sparrow (1937, Trans. Linn. Soc. N. Y. IV: 194) where in Table XXVIII birds with 60 per cent survival—Song Sparrows under favorable conditions and these Lapwings—showed an average length of life of 2.5 years, *i.e.* of those birds that survived to breeding age. The authors reckon that 100 Lapwings in 1938 might raise 70 fledged young that in 1939 would amount to 40 yearlings. A fine example of what can be learned through banding.

2. Data from a Bird-Banding Station at Elmhurst, Long Island. Marie V. Beals and J. T. Nichols. 1940. *Birds of Long Island*, No. 3: 57-76. For eleven years Mrs. Beals has banded large numbers of birds in Queens County, western Long Island. Adult Robins and young of the year were found to return to nesting locality, the young being "trapped birds not nestlings", suggesting that the return is made "to a locality established before migration." Bicknell's and