

Copper screen 1 pc. 6½" x 4"
Solder ¼ lb.
Tinnners' flux and small paste brush

TOOL LIST (Minimum for efficient work)

Electric drill, quarter-inch
Set of drill bits
Grinding wheel, 4", #60 grit
Soldering iron, 100-watt or larger
Metal shears
Hammer
Pliers One long-nosed, with wire cutters
One slip-joint, for gripping tightly
(A pair of diagonal wire-cutters will be useful)
Files One 10-inch, flat, mill cut
One 6-inch, triangular, mill cut
Alligator clips Four or more

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Ed. note: this trap design attracted a great deal of interest at recent meetings of NEBBA. It has been tested by active use of several dozen traps over a three-year period. My own impression is that it is the best design for an automatic-door trap yet devised, for light birds and perhaps for most of the birds which will come to a feeding shelf off the ground. The excellent workmanship demonstrated by Mr. McCamey has contributed to the efficiency of the trap, but I believe that the design is still efficient with a somewhat lower grade of workmanship (which is perhaps the best that most of us can do). The general methods and materials described are suitable for other small traps. As far as I know, this design has not yet been employed in a multi-cell trap; anyone doing so should consider the possible disadvantages of multi-cell design with a trigger capable of releasing the door with a load of only 2 to 5 grams (vibration from the movement of birds already caught, or from the falling of a compartment door).

GENERAL NOTES

A Modification of the Miller Method of Aging Live Passerine Birds.—Miller (*Bird-Banding*, 17: 33-35, 1946) described a method of determining the age of live passerine birds. This method utilized the condition of the skull, which is incompletely ossified during the immature birds' first few months of life. Miller's description of skull-roof differences between immature and adult passerines is as follows:

"The skull of a passerine bird when it leaves the nest is made up of a single layer of bone in the area overlying the brain; at least, the covering appears single when viewed macroscopically. Later the brain case becomes double-layered, the outer layer being separated from the inner layer by an air space across which extend numerous small columns of bone. It is not necessary to section the bone to determine the condition. Externally the skull of the immature bird appears uniform and pinkish in live and freshly-killed specimens. The skull of the adult is whitish, due to the air space, and also it is finely speckled as a result of the dense white bony columns between the layers."

Miller points out that "the double condition is attained progressively and, in some species, more rapidly than in others." He says further that "in many passerine species of the north temperate region one may rely on evidences of immaturity persisting in the skull through September and October. Often they may be detected later. Experience must be gained separately with each species in order fully to evaluate the evidence." In the English Sparrow (*Passer domesticus*), Nero (*Wilson Bull.*, 63: 84-88, 1951) found that the double condition "had

been attained in one specimen 181 days old, but [that] another specimen 221 days old still showed small clear areas." In some species (such as the Pigmy Nuthatch, *Sitta pygmaea*) the clear areas may have diminished to small size (2 or 3 mm. in diameter) by the first week in November. In others (such as the Savannah Sparrow, *Passerculus sandwichensis*) comparable diminution in size is not seen, as a rule, until early December.

The technique developed by Miller involves the plucking of feathers from a small space on one side of the crown, after which a longitudinal cut, about 3 mm. long, is made in the skin. The cut is spread somewhat and, owing to the looseness of the skin, can be moved about so that one can view a considerable part of the skull roof. After the condition of the skull has been determined, "edges of the cut are pressed together and a drop of 20 per cent celloidin is spread along the cut and allowed to dry for a few seconds, forming a seal." For other particulars concerning this method, the reader is referred to Miller's paper.

In the fall of 1957 I was engaged in a study of Savannah Sparrows in old fields of the Savannah River Plant area, Aiken County, South Carolina. For certain populations I needed to determine whether birds banded in fall were immatures or adults, so I began to use the Miller technique. It was soon discovered, however, that the cut in the skin was unnecessary. After trimming off feathers from a part of the crown area (and, in addition, plucking out most of their bases), I found that by thoroughly wetting the skin with saliva and examining the bare surface with a 10x hand lens, preferably in direct sunlight, I could see the skull condition through the skin and its surface film. The many little white dots, representing the above-mentioned bony columns, were promptly discerned in the adult birds. In immature birds the skull surface, as viewed through the skin, was uniform and perceptibly pinkish in the "unossified" or single-layered "window" area. By having a sufficient space denuded and by moving the loose skin back and forth, I was able to find in the immature the periphery of the double-layered or "ossified" bone, with its whitish appearance and numerous white dots, which was gradually encroaching on the unossified area. As seen under the hand lens, the clearly demarked edge of the ossified part of the cranial roof was rather irregular and often was even jagged. Although the border of the ossified tissue completely framed the unossified area, it was usually easier to search for the line of demarcation on the latero-posterior aspect of the crown, where the crown approaches the occipital region. There was no need for "postoperative" care. As was noted among color-banded Savannah Sparrows, some individuals aged by this method retained small, sparsely feathered areas on the side of the crown (where some of the feathers had been clipped off closely but not plucked) throughout the winter, but there was no evidence that this had an adverse effect on any of the birds.

This modified procedure has been used successfully with various passerines up to the size of the Mockingbird (*Mimus polyglottos*). Hence it is probably applicable to the vast majority of North American songbirds. Limited observations indicate, however, that it cannot be used with Blue Jays (*Cyanocitta cristata*) or larger corvids, which are relatively thick skinned. The modified method seems to offer but few difficulties or drawbacks. I should perhaps emphasize that with the smaller species, especially, it is well-nigh essential that one have small, sharp-pointed scissors for trimming and a fine pair of forceps for plucking. The bird's head must be immobilized (this can be done between one's thumb and index finger) lest the eye or some other part be injured. Any worker having steady hands, a delicate touch, and a little patience will, however, rarely run into trouble. Although I have found saliva satisfactory for wetting the skin, some other fluid (possibly glycerine) might serve just as well or better. Occasionally a bird with pinfeathers on the crown will show, as a result of plucking, appreciable subcutaneous hemorrhage; this may interfere with examination of the skull, whether the Miller method or the modified procedure be employed. Birds which have battered themselves in traps or cages often have an inflamed forehead and crown region; with these the skin-cut method is inadvisable and the modified method is usually impossible. Mist-netted birds, on the other hand, show such inflammation only infrequently. One can age birds satisfactorily by artificial light as well as daylight. A fluorescent desk lamp, for example, serves very well. If one uses the method outdoors

under conditions of poor illumination, a headlight is a useful item of equipment. As Miller points out, the operation involving the cut takes less than two minutes for one who is in practice. For one who is skilled in the modified method, hardly more than a minute is required.

In some passerines, to be sure, birds in first-winter plumage can be distinguished from older ones by plumage characters, but in our present state of knowledge we can do this with relatively few species. Consequently a simple method of aging live birds on the basis of the skull condition may be of use to banders who wish to obtain more than minimal data from the birds they handle.

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[In early November, 1960, I sent a carbon copy of the preceding paragraphs to Dr. James Baird who was conducting bird-banding studies on Block Island, Rhode Island. Baird wrote (letter, November 16) that he "immediately tried out the method and was eminently successful," having difficulty with only one bird, a Fox Sparrow (*Passerella iliaca*), although he was able to age two other Fox Sparrows. He pointed out that the procedure might further be simplified, thus: "I do have a suggestion resulting from my experimenting with the . . . method: to wit, it is not necessary to clip or pluck feathers. I simply wet my finger with saliva . . . part the feathers along the crown (off center), and then rewet it to moisten the skin. The wetting of the feathers makes them discrete and easily pushed aside. If an odd feather gets in the way it is easy to pluck out the single offender." Baird added that this might appeal to some banders "who would shudder at the thought of plucking a bird bald-headed." He also felt that I should "append a suggestion that novices might do well either to receive instruction or else skin an immature bird to get some idea of what they are looking for." These recommendations and suggestions for improvement by Baird are most welcome and should be taken into account by anyone planning to use this method of aging live passerine birds.] —Robert A. Norris, University of Georgia Ecological Studies, AEC Savannah River Plant area, Aiken, South Carolina. Present address: 427 Eureka Street, San Francisco 14, California.

Some Starlings Resident in Connecticut.—The last issue included a plea (Comments on the migration of Starlings in eastern United States, David E. Davis, *Bird-Banding*, 31: 216-219) for the banding of resident Starlings (*Sturnus vulgaris*). At my backyard station in West Hartford, Conn., I have banded Starlings rather than disposing of them, but only in small numbers incidental to other banding. From May, 1952, through 1959, 223 were banded.

While four fledglings were banded in a nest box, and a few individuals were taken in mist nets, most were taken in Potter-type automatic door traps on raised shelves. Some, taken from April through early August, were attracted by sunflower seeds, incidental to the banding of Blue Jays and Common Grackles.

Table 1 — Returns

Band Number	Age and Sex	Date Banded	Date of Return
48-216561	—	31/5/52	13/6/53
563	—	15/6/52	5/7/53
565	—	21/6/52	5/7/53
570	A	29/6/52	12/7/53
571	I	29/7/52	11/7/53
597	—	18/1/53	7/6/53
502-42790	A ♂	15/12/56	9/7/58
807	—	14/5/53	26/3/55
809	—	16/5/53	29/11/53
			23/1/55
			4/5/57
810	—	21/5/53	22/11/53
			10/12/57
824	I	6/6/53	2/6/56
825	A	6/6/53	15/12/56
832	A	15/6/53	29/11/53