

A Method of Netting Birds at Open Nests in Trees.—This note describes the use of a small hoop net, resembling a butterfly net, as a device for catching birds at open nests in trees and shrubs. The method is simple and highly effective. Despite its simplicity it appears not to have had any general use.

Information from personal inquiries and published papers indicates that many ornithologists have difficulty in capturing tree-nesting birds. However, after I had devised and used a hoop net, I learned that Lawrence H. Walkinshaw had been employing the method for many years. Thus the procedure described here is not new, although it is original.

Unless otherwise indicated, references to birds are to Prairie Warblers (*Dendroica discolor*), about 100 of which I have caught in hoop nets. I have also used the device to catch small numbers of Bell's Vireos (*Vireo bellii*), Indigo Buntings (*Passerina cyanea*), American Goldfinches (*Spinus tristis*), and Field Sparrows (*Spizella pusilla*). Birds have been taken at heights ranging from about one to six meters.

A net suitable for catching small birds has a hoop about 35 to 45 cm (15 to 18

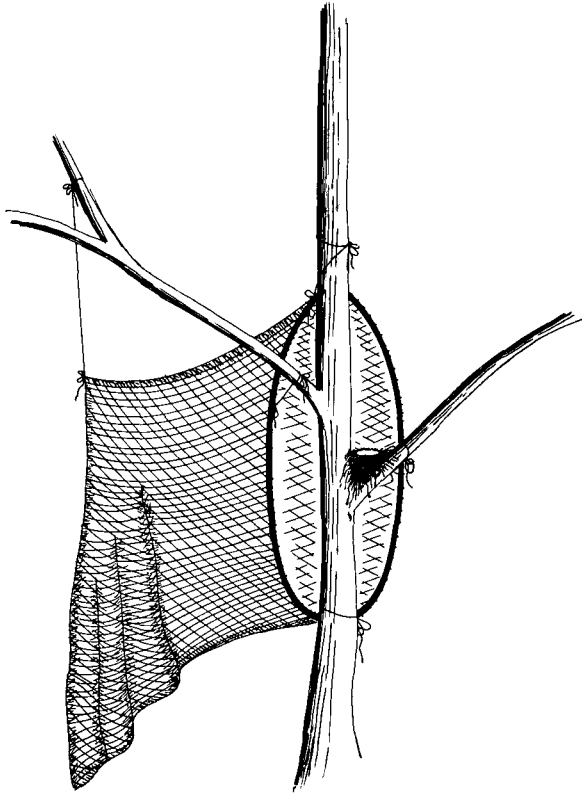


Figure 1.

inches) in diameter, made of wire pliant enough to allow some shaping to fit the situation at each nest. Coat-hanger wire serves well. A bag made from ordinary fine mist netting is laced to the hoop and sewed together to form a pocket about 60 cm (24 inches) deep. It is preferable to cut the bag so that it is roomy and square at the end rather than narrow and tapering.

The net is placed in such a way that the nest is in the center of the hoop, just at or inside the mouth of the bag, as shown in Figure 1. The hoop is pulled well under the nest, if possible, to catch the bird if it drops downward on leaving. Neutral-colored yarn, which can be broken with the fingers of one hand when the net and the captured bird are removed, is used to tie the hoop in position. Several lengths of yarn are fastened to points around the hoop before the nest is approached; the yarn at the top of the hoop is tied to the tree first, and a sufficient number of other lengths are then fastened to the tree to hold the frame rigid.

The position of the bag is critical. It should extend backward from the hoop parallel to the ground for the first half or two-thirds of its length, and the remainder of it, *i.e.*, the closed end, should hang slack. The bird can then enter the bag easily but will work its way into the drooping, closed pocket, where it will hang indefinitely. In contrast, a bird may not get far enough into a net that hangs slack straight from the hoop, and escape is equally possible from a bag whose entire length is horizontal and taut. To prepare the site for the net all intruding vegetation is cut off or tied back. Fine, dark thread, tied to the bag itself, is used to hold the bag in the desired position. Except on very windy days, I have found one thread, tied at one end to the top of the bag and at the other end to overhanging vegetation, sufficient to hold the net in place. Figure 1 illustrates how the bag is suspended from the thread and hangs slack beyond the point of attachment of the thread.

The principal variation from the foregoing general instruction is required when nests are built in herbaceous plants, against grass stems, or in other situations providing no supports to which the hoop may be tied. In these cases artificial support for the hoop can be provided by a cut sapling selected for its suitability in shape and sharpened at the base so that it can be stuck into the ground at the nest site. As in all instances in which one can anticipate that he must alter or prepare the area immediately surrounding the nest, the changes should be made gradually and in advance.

Experience indicates that the net can be put up in from one to two minutes, during an inattentive period of the adults. Birds returning to the nest for the first time occasionally show some uneasiness if the netting is blowing in the wind or if the sunlight glints on the net or wire; but none have ever deserted, and I have never found camouflage necessary. It is clear that the net is almost always detected immediately. Only twice has a bird flown into the bag in the normal course of leaving the nest and without my having frightened or driven it; on both these occasions the net had been put up immediately before the capture. Therefore, once the investigator sees the adults depart from the nest a time or two without flying into the net, he can with considerable assurance leave the device in place and make the catch later at his convenience. I sometimes put the net up several days in advance but tie the bag closed or pull it out of position.

Making the capture requires a sudden movement in the direction of the nest from the side opposite that toward which the bird must fly to enter the hoop. Details of the procedure will depend upon the height of the nest, the stage of nesting, and the sex and degree of timidity of the bird to be caught. When a

bird is too timid to allow a close approach or when it is likely to be at the nest only briefly (building, feeding), the investigator can withdraw a few meters with no loss of effectiveness, if he trims a long sapling of all but a few leaves at the top and holds this before him when he runs at the nest, thus extending his reach. Similarly, a bird sitting on an overhead nest can be startled off by one's suddenly erecting such a sapling above nest height and waving it toward the nest. Under some circumstances, *e.g.*, at high nests, it may be necessary to make the startling movement by means of a nearby branch that has been pulled back under tension; when the tension is released the branch snaps toward the bird at the nest. In all cases, the angle of approach to the nest is important and should be determined with knowledge of the direction in which the bird is facing and the probable degree to which its line of departure may be deflected.

Removal of the captured bird without danger of its escaping or being injured usually requires that the net be taken down. The bird is grasped in one hand from outside the bag, and the threads and yarn tying the apparatus in place are broken with the other hand. I prefer to extricate the bird from the netting by cutting two or three strands and pulling it through from the outside, then repairing the net immediately.

Desertions of nests by captured birds of all species have amounted to about 2 or 3 per cent and have never occurred after the first day or two of incubation. Risk of desertion has been eliminated by the introduction of a nestling into the nest, a practice that has the additional advantage of causing the male to initiate feeding and thus to be vulnerable to immediate capture. If the introduced nestling is removed from the nest at the time the adults are caught, they are likely to desert. However, the young bird can be taken surreptitiously a day or two later, and the female will then resume incubation. A discussion of the tolerance of birds to this sort of manipulation is reserved for a later paper (see Emlen, *Condor*, 43: 209-219, 1941), but it should be noted that the utility of the hoop net is greatly increased by the fact that Prairie Warblers accept and feed nestling Indigo Buntings, Chipping Sparrows (*Spizella passerina*), Field Sparrows, and, of course, Brown-headed Cowbirds (*Molothrus ater*). Indigo Buntings and Field Sparrows also accept young Prairie Warblers.

A comparison of the foregoing procedures with the brief description by Walkinshaw of his method of catching Field Sparrows in a minnow seine (*Bird-Banding*, 10: 107-114; 149-157 at 153-154, 1939) will reveal no differences in principle. Further, in a letter to me on 30 July 1959 Walkinshaw stated that he had more recently used women's hair nets to capture birds at nests. It is almost certain that others have developed similar nets.

The advantages of the method described here may be summarized by contrasting it with the use of the mist net. The hoop net is a selective trap for nesting birds. It can be sprung at the investigator's convenience, is easily set, and requires no cutting of swathes through vegetation. Its effectiveness is not limited to windless days, nor is it important that it escape detection by the bird to be caught. Usually the net can be set up at any height to which it can be carried, and it is easily portable in a plastic or paper cover that protects it from snagging.

I wish to thank Andrew J. Berger and Lawrence H. Walkinshaw for reading this note in manuscript.—VAL NOLAN, JR., *Indiana University, Bloomington, Indiana*.