

- BORROR, D. J., 1948, Analysis of Repeat Records of Banded White-throated Sparrows, *Ecol. Monog.*, 18(3) : 411-430.
- DELURY, D. B., 1947, On the Estimation of Biological Populations, *Biometrics*, 3(4) : 145-167.
- FARNER, DONALD S., 1949, Age Groups and Longevity in the American Robin: Comments, Further Discussion, and Certain Revisions, *Wils. Bull.*, 61(2) : 68-81.
- HAYNE, DON W., 1949, Two Methods for Estimating Populations of Mammals, *J. Mamm.*, 30(4) : 399-411.
- JACKSON, C. H. N., 1939, The Analysis of an Animal Population, *J. Anim. Ecol.*, 8(2) : 238-246.
- JACKSON, C. H. N., 1948, The Analysis of a Tsetse-fly Population III, *Ann. Eugenics*, 14(2) : 91-108.
- KENDEIGH, S. C., 1941, Territorial and Mating Behavior of the House Wren, *Ill. Biol. Monog.*, 18(3) : 1-120.
- KENDEIGH, S. CHARLES, 1944, Measurement of Bird Population, *Ecol. Monog.*, 14: 67-106.
- LACK, DAVID, 1946, Do Juvenile Birds Survive Less Well Than Adults? *Brit. Birds*, 19: 258-264.
- LACK, DAVID, 1949, The Apparent Survival-rate of Ringed Herons, *Brit. Birds*, 42(3) : 74-79.
- LINCOLN, F. C., 1930, Calculating Waterfowl Abundance on the Basis of Banding Returns, *U. S. Dept. Agr. Circ.*, 118: 1-4.
- NICE, M. M., 1937, Studies in Life History of the Song Sparrow I, *Trans. Linn. Soc., N. Y.*, 4: 1-242.
- ODUM, EUGENE P., 1942, Annual Cycle of the Black-Capped Chickadee, *Auk*, 59(4) : 499-531.
- PAYNTER, R. A., 1947, The Fate of Banded Kent Island Herring Gulls, *Bird-Banding*, 18(4) : 156-170.
- RICHDALE, L. E., 1949, *A Study of a group of Penguins of Known Age, no. 1*, Dunedin, New Zealand: 1-88.
- RICKER, WILLIAM E., 1948, Methods of Estimating Vital Statistics of Fish Populations, *Indiana Univ. Pubs. Sci.*, Series no. 15: 1-101.
- SOWLS, LYLE K., 1950, Techniques for Waterfowl-nesting Studies, *15th N. Am. Wildlife Cong.*, 473-489.

*Johns Hopkins School of Hygiene and Public Health, Baltimore, Md.*

## A COLLAPSIBLE BIRD TRAP

BY ROBERT E. BAILEY

Many people trapping birds, whether for a nesting study, banding, or other purposes, are aware of the need for a trap which can be made in large quantities in a short time and which is fairly foolproof in operation. When faced with these problems in recent work with White-crowned Sparrows and other ground feeding birds, I devised a trap which was admirably suited to my purpose, the design and construction of which may be of interest to others.

The basic material used was  $\frac{1}{2}$ -inch mesh hardware cloth, although  $\frac{3}{4}$ -inch mesh would be suitable for larger birds. The specifications given here apply to  $\frac{1}{2}$ -inch mesh and the time required per trap when mass production methods are used is about 15 minutes. The sides, top, bottom, back end, and door were cut out by following the wires of the mesh, and it is important that only mesh in which the wires meet at right angles be used in order for the pieces to fit properly.

The following pieces are needed for each trap:

No.	Size (in inches)	Material	Item
3	6 by 8	Mesh	Sides and bottom
1	6 by 5	Mesh	Top
1	6 by 6	Mesh	Back
1	6 by 5½	Mesh	Door
2	8½	14-gauge wire	Drop wires
1	4	14-gauge wire	Hook for back
1	17½	14-gauge wire	Treadle
1	11	14-gauge wire	Door prop
15	¼-inch	Wire rings	To fasten sides, top, etc.

(or about 26 inches of 18 gauge wire)

The only tools needed are tin shears (to cut mesh), wire cutters, and pliers.

A slot is cut out of the two sides between the fifth and sixth wires from the front end, starting with the second wire down and cutting through the seventh wire. This provides a runway for the drop wires. The two sides are fastened to the top and bottom with wire rings. The back is fastened only at the bottom and is then equipped with a hook looped to the top wire. The hook passes through the end wire of the top and is bent in such a fashion that it locks securely with one of the wires of the back. The treadle wire is bent into a  $\sqcup$ -shape, 6 inches long and 5½ inches wide. It is fastened to the back by looping the ends around the third wire from the bottom. About 5 inches of the prop wire are woven through the door near one side, starting with the second wire from the top (the short dimension of the door is the horizontal axis) and the remainder is bent at right angles so it will engage the treadle. The door is then fastened to the front end of the top with several rings. The door is slightly narrower (½ inch) than the opening and it is important that no rough edges are present which may prevent it from falling freely. Occasionally it is desirable to flare out slightly the front ends of the sides. The drop wires are fastened at the top of the runway slot on each side and the free end is inserted into the slot on the opposite side.

To set the trap the door is raised and the drop wires rested freely on it. Caution must be taken to see that the drop wires are in the slot on the opposite side and that the door will swing freely. The free end of the prop wire is rested against the treadle. The length of the prop wire should be adjusted so that the perch end of the treadle will be raised about ¾ of an inch from the floor of the trap. Usually a slight hook is needed in the end of the prop wire to keep it from sliding off of the treadle too easily.

When the trap is set the front is wide open and I believe that birds enter it more readily than the Potter traps. If baited near the back the birds usually hop onto the treadle, but if difficulty is met with in this regard a small piece of mesh can be fastened to the treadle to increase the surface. When the treadle is pressed down, the door prop is released and the door swings shut, usually giving the larger birds

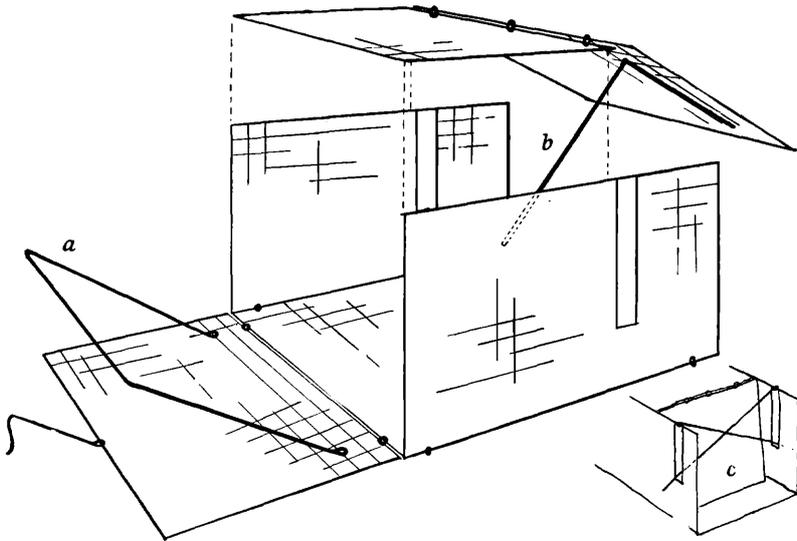


Figure 1. An exploded rear view of the collapsible trap showing the manner in which the parts are assembled. a) Treadle. b) Door prop. c) A small view of the front with the door down showing the arrangement of the drop wires.

a boost into the trap. The drop wires fall down quickly and the bird is then unable to push the door open.

To remove a bird, turn the trap so that it rests on the back end. The drop wires are pushed to the top again and the door carefully opened with one hand. The other hand is used to grasp the bird. I have never lost a bird from a trap using this method. To collapse the trap remove the drop wires from the slots, unhook the back and swing it outward along with the treadle. The trap can then be folded into a compact flat bundle of approximately 9 by 7 by 1 inches. This permits a large number of traps to be transported with a minimum of space.

The life of the trap is limited by the strength of the joints in the mesh. Reinforcement wires can be soldered in the weak places and further strength can be added by using more rings to fasten the sides together. Some experience will show that the trap is not entirely fool-proof but I believe that the ease of construction is ample compensation.

The overall size of the trap built to the above specifications is about 6 by 6 by 8 inches when set and 6 by 6 by 6 when the door is down. I have captured many ground feeding birds including White-crowned Sparrows, Brown and Spotted Towhees, Valley Quail, and Mourning Doves. The trap, however, should be built longer if the larger birds are primarily trapped. The size of the trap can easily be varied to suit many needs and is probably also adaptable to types of birds other than ground feeders.

*Museum of Vertebrate Zoology, University of California, Berkeley.*