

METHODS OF TRAPPING SHORE BIRDS<sup>1</sup>

By SETH H. LOW

THE principle which makes shore-bird-trapping possible was first employed by W. I. Lyons. It consists of erecting foot-high wire fences across natural feeding areas. Shore-birds move about extensively while feeding, and upon coming up against a fence are inclined to run along it rather than to fly over it. The fence, or lead, as it is called, guides the birds into the trap.

Originally large-mouthed pull-string traps were used, but they proved unsatisfactory for three reasons: the hauls were small, the trap had to be constantly watched, and the operation scared away the birds in the vicinity. For the same reasons throw-nets are not practicable. In the autumn of 1930 experimenting was begun with automatic traps made of  $\frac{3}{8}$ -inch hardware cloth with funnel entrances of the type used in sparrow traps. But circular-shaped traps with wide, high entrances were soon found to be more efficient. With the adoption of the largest possible mesh the traps became very light and therefore relatively inconspicuous. These the sandpipers entered easily but in time they found their way out again. The birds would not readily pass from the trap into the funnel-entranced gathering-cages, which likewise failed to hold those that did enter. The problem was to allow the birds to pass as expeditiously as possible from the trap into the gathering-cage; and second, to devise a gathering-cage which would take and hold both Least Sandpipers and Greater Yellow-legs. The former problem was solved by erecting a guide to divert the birds circulating about in the trap into a cage which was as light or lighter than the trap itself. The second proved to be difficult, but a glance at the past season's banding will show that the difficulty has been pretty well overcome. The answer was an inclined plane or ramp.

## THE TWO-CELL TRAP

This is the simpler of the two traps to make. Diagram 1 shows the trap set up in relation to the gathering-cages and the leads. The trap is made in two sections: one (FGHIJ) is shown with a gathering-cage attached, the other (ABCDE) without a gathering-cage. Since the attachment of the gathering-cages is a secondary matter, every section is built after the plan of section ABCDE. Each section is built on a four-foot piece of 1 x 2-inch scantling which runs along the roof (CKAE). No other framework is needed if No. 18 gauge  $\frac{3}{4}$ -inch hexagonal-mesh wire is used to make the side. A piece two feet high and ten feet long will make the entire side (ABCDE) of one section. It is attached on the upper edge to the scantling at

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<sup>1</sup>Contribution No. 19 from the Austin Ornithological Research Station.

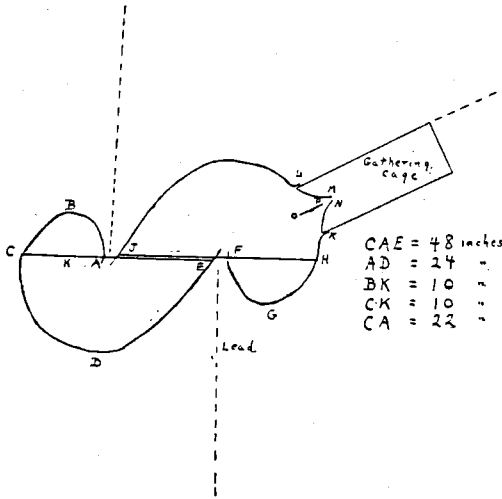


Diagram I.  
Two-cell Trap.

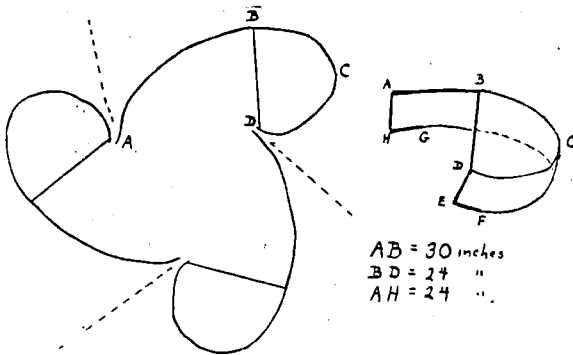


Diagram II.  
Three-cell Trap.

C, A, and E. Each end should project about two inches beyond the scantling at A and E respectively. For the top, No. 19 gauge, 1 inch-mesh wire is recommended, for it is easier to work with and gives the trap more light. The diagram shows how the two sections fit together to form a two-funnel trap.

#### THE THREE-CELL TRAP

This trap catches more birds than the two-cell but is harder and more expensive to make and set up. The pattern is that of the Three-

leaved Clover trap designed by F. C. Lincoln for Mourning Doves<sup>2</sup>. The side (ABCD) of a single cell is made of the same wire as that used in the two-cell, but the piece is only nine feet long. The cell is built on a frame of No. 9-gauge wire, shown by the heavy line (GHABDEF) in the side view (Diagram 2). The top is constructed with the wire recommended for the first trap but covers only the area bounded by BCDB. Each section has a wing (AB), so that when the three sections are in position there is a large unroofed area between the wings. This is covered, after everything else has been set up, with a piece of poultry wire. The relation of the leads to the trap is illustrated. At least two cells of each trap should have gathering-cages attached in the manner to be described later.

#### THE GATHERING-CAGE

Except for the ramp, the entire gathering-cage (Diagram III) is made of  $\frac{3}{4}$ -inch No. 16-gauge hardware cloth. This is very stiff and eliminates the need for a frame. The sides (ADEH and BCFG) and the top (ABCD) are made out of one piece of wire 36 inches wide and 40 inches long. The back (CDEF) and the wings (AHN'N and BGM'M) of the V-shaped entrance are of the same wire. M and N are about 6 inches in from AB. The inner ends of the wings (MM' and NN') should be left flexible so that the width of the mouth may be adjusted. Two inches will be found most satisfactory.

The ramp (POO'P) is made of  $\frac{3}{8}$ -inch hardware cloth, and its length is 20 inches. The top edge (OO') should be 6 inches high and 6 inches in front of the back. WW' is a vertical partition made of the same wire and is to prevent small birds from becoming wedged under the lower end of the ramp. The dotted lines (ST, ST, etc.) represent a most important feature of the cage. Taut strings or fine wires are strung vertically two inches apart between the upper edge of the ramp and the top of the cage. Both Least Sandpipers and Greater Yellow-legs walk readily up the incline and step between the wires down into the second compartment. To get back out a bird must fly, but with its wings spread it cannot get through the wires.

A door for removing the birds should be placed in the top near the back edge, so that one's hand may conveniently reach all the corners of the second compartment.

#### ATTACHMENT OF GATHERING-CAGE

Attaching the gathering-cage to a section of a trap is not just a simple operation of cutting a hole in the side of the section and shoving on a cage. Diagram 4, representing the back side of a section, illustrates the best way of making the entrance. The wire is cut only along the dotted lines. The rectangular piece (MNOP) is *not completely* cut out, but is left attached to the side at E and F.

<sup>2</sup>*Bird Banding Notes* No. 13, November, 1924, p. 8.



At the Austin Station a pocket of the salt marsh was dammed off to create a two-acre pond. During most of the year this pond is kept flooded, so that there is an oozy, muddy bottom teeming with animal life. In shore-bird season the water-level is lowered until large areas of mud are exposed (see photograph, Fig. 5). At this stage it is difficult to prevent the pond from drying out, so now and then it has to be flooded to freshen up the muck.

In coastal regions non-tidal trapping areas have an obvious and important advantage. At low water great expanses of flats are exposed, but when the tide comes in, the shore-birds are forced back onto the mainland. There they congregate in secluded spots to wait until the tide drops and permits them to resume feeding. But with plenty of food available in the pond regardless of the tide, it naturally becomes a mecca for all the shore-birds in the region.

#### SETTING UP THE TRAPS

Little need be said on this subject, for the procedure is obvious. For leads, rolls of one-foot-high one-inch-mesh No. 20-gauge wire are fastened at six-foot intervals to stakes. Long, heavy wires with a hook on one end are useful for anchoring the sections and the ends of leads in place. The accompanying photograph shows a battery of traps in operation. Note how close together the traps are. Also the leads are arranged to enclose completely a great many small areas.

#### RESULTS

The following table shows that the traps are capable of taking a wide variety of shore-birds in large numbers. The nature of the feeding area and its location are the selective factors. With the present set-up every species that may be reasonably expected has been trapped. Black-bellied and Golden Plover, Piping Plover, Turnstones, Sanderlings, Knots, and Curlew rarely, if ever, come into the pond. Ring-necked Plover, White-rumped Sandpipers, and Red-backed Sandpipers appear only in relatively small numbers.

Although twice as many and better traps were operated this past season (1934) than in 1933, far fewer birds were caught. This is explained by the fact that throughout September cold easterly winds kept the flight confined to the mainland. Except for the Least Sandpiper all the smaller species were taken in fewer numbers. The Least is not an exception, however, for only 61 out of the 357 were banded after September 1st.

#### SUMMARY OF BANDING

<i>Species</i>	1930	1931	1932	1933	1934	Total
Semipalmated Plover.....	6	12	6	73	31	128
Killdeer.....	..	..	..	..	1	1
Black-bellied Plover.....	2	1	..	..	..	3
Ruddy Turnstone.....	..	..	..	1	..	1
Wilson's Snipe.....	..	..	5	..	5	10
Spotted Sandpiper.....	2	47	23	16	20	108

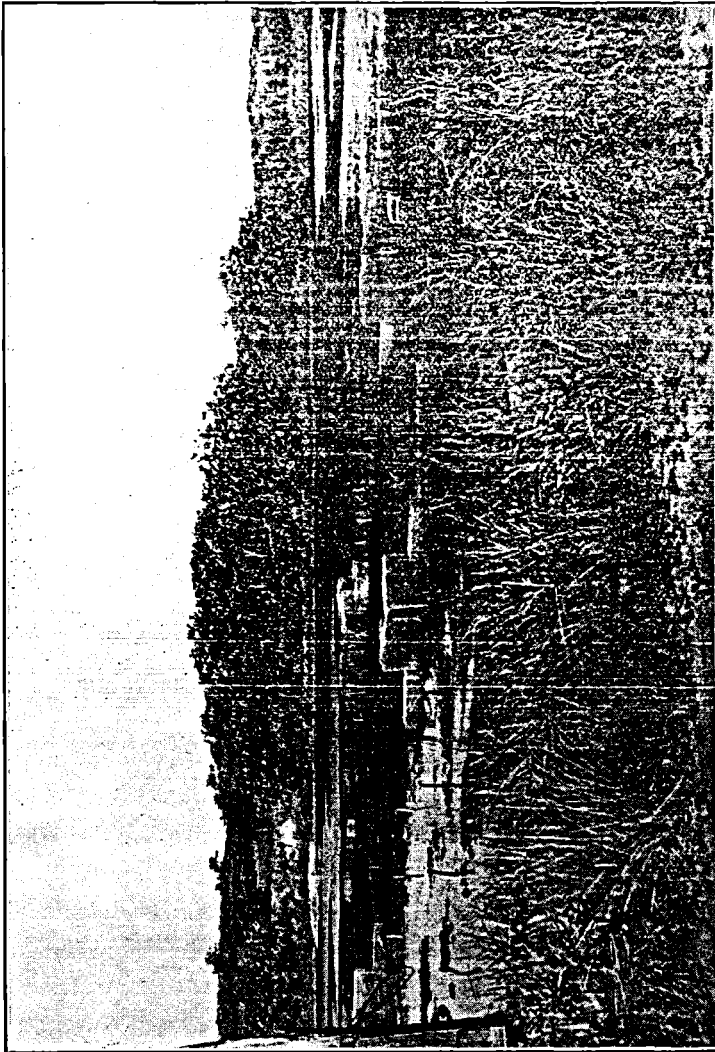


Figure V. Mud Flats Showing Traps in Position

Solitary Sandpiper	..	..	13	5	17	35
Greater Yellow-legs	..	..	2	8	41	51
Lesser Yellow-legs	..	..	6	42	44	92
Pectoral Sandpiper	1	1	3	26	26	57
White-rumped Sandpiper	11	1	4	25	3	44
Least Sandpiper	8	183	282	219	357	1,049
Red-backed Sandpiper	14	..	..	..	2	16
Dowitcher	..	..	..	8	27	35
Long-billed Dowitcher	..	..	..	..	1	1
Stilt Sandpiper	..	..	..	13	20	33
Semipalmated Sandpiper	5	199	68	1,895	653	2,820
Western Sandpiper	..	..	..	76	55	131
Wilson's Phalarope	..	..	..	1	2	3
Total	49	444	412	2,408	1,305	4,618

A list of other species taken in these two types of traps is appended merely as a matter of interest. However, it should be pointed out that the traps are fine for rails when set in the proper places.

Little Blue Heron	Barn Swallow
Green Heron	Myrtle Warbler
Black-crowned Night Heron	Pine Warbler
Yellow-crowned Night Heron	Western Palm Warbler
American Bittern	Northern Water-thrush
Black Duck	Red-winged Blackbird
Green-winged Teal	Savannah Sparrow
King Rail	Chipping Sparrow
Virginia Rail	Song Sparrow
Mourning Dove	

#### RETURNS

Number	Species	Banded	Returned
C83434	Semipalmated Sandpiper	Aug. 23, 1930	Aug. 1, 1931
L1726	Semipalmated Sandpiper	Aug. 24, 1933	July 23, 1934
L1730	Semipalmated Sandpiper	Aug. 25, 1933	Aug. 15, 1934
L1765	Semipalmated Sandpiper	Aug. 25, 1933	July 21, 1934
F60297	Least Sandpiper	Aug. 27, 1931	Aug. 1, 1932
H03763	Least Sandpiper	Aug. 20, 1932	Aug. 2, 1934

#### RECOVERIES

- L1986 Semipalmated Sandpiper banded Aug. 29, 1933, taken at Campano, Venezuela, Sept. 24, 1933.<sup>3</sup>
- B319966 Wilson's Snipe banded Sept. 4, 1932, taken at Buck Island, Currituck County, N. C., Jan. 12, 1933.<sup>4</sup>
- B234496 Lesser Yellow-legs, banded Aug. 14, 1933, taken by P. Jester, American Consul, Barbados, British West Indies, on October 29, 1934.

The returns and recoveries to date are few in relation to the numbers banded. But with more banders and with the possibility that the hunting-season on shore-birds may be opened, it is important to band as many of the larger species as possible. One factor, however, stands in the way of results—namely, that the bands corrode so badly that one year later it is almost impossible to read the numbers.

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<sup>3</sup> *Bird-Banding*, Vol. 5, No. 1, January, 1934, p. 47.

<sup>4</sup> *Bird-Banding*, Vol. 4, No. 3, July, 1933, p. 157.