

A METHOD OF COMPARING TRAPS

BY CHARLES H. BLAKE

I have already (Blake, 1949) described a rather elite method of securing an absolute comparison between traps and mentioned some of the variables involved in trapping. Here I propose to describe another way of comparing traps which may be used when there is no objection to confounding the effects of some variables.

The procedure which I have adopted for this purpose is to tally all takings according to the trap involved. Each difference of construction, bait, and site is tallied separately. Each species or group of species is also tallied separately. Each trap is given a weight which is the product of the number of cells by the number of months in use. The number of birds taken is divided by this weight. This gives the *weighted taking* or taking per cell per month.

At this point there will usually be so many variables still kept separate that few general conclusions can be drawn. It is helpful to group the weighted takings so that only one or a few variables are exposed. To do this the weighted takings of all traps showing one form or value of the variable or group of variables are added and the sum divided by the number of items added. This figure is the *weighted group taking*, which may be recalculated as a percentage of the total of weighted group takings.

We may illustrate by computing chickadee takings in a few traps.

TABLE I

Trap	Takings	Number Cham- bers	Num- ber Months	Weight	Weighted Takings
Potters on platform, seed	179	2	7	14	12.7
Modesto on ground, water	4	1	6	6	0.7
Mason on ground, seed	1	1	4	4	0.2

The weighted group taking of the last two traps would be 0.45. Evidently a Potter type trap on a platform 3 or 4 feet above ground is some 30 times as effective here as a trap on the ground.

It is usually convenient to adjust the figures so that the smallest one greater than zero is made unity. (In the above example all weighted takings would be multiplied by 5.) This merely avoids having many small fractions to compare. In Table II I give the results of two comparisons of trappings of Black-capped Chickadees (Apr.-Oct. 1950), warblers other than *Seiurus* (1947-50), *Seiurus* (1947-50), Slate-colored Juncos (Sept.-Oct. 1947-50), immature Red-eyed Towhees (1947-50), and Eastern Goldfinches (Feb.-Apr. 1949-50). Under each the first column is weighted group takings with total and the second column the group takings as percentages of the total.

In the upper part of the table seven categories differing in type of opening, position, and bait are distinguished. The term "level opening" includes both the *turn* and *funnel* inlets of maze traps (Fig. 1) and the Potter type drop doors. The lower part of the table contrasts maze with

mechanical traps (Potter and Chardonneret types) but confounds the variables of inlet, position, and bait.

It will be noted that certain categories which have not been tried might be useful, such as maze traps on platforms or water-baited traps on platforms.

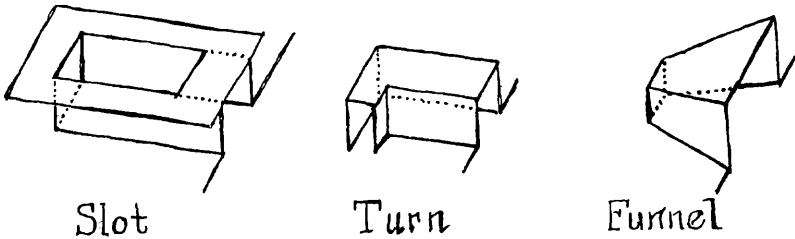


Table II is worth a closer look. The apparent preference of Chickadees for mechanical traps is really a preference for traps above ground and no maze traps have been so placed. The real preference of the generality of warblers is for water in either level or top opening traps. My selection of water traps tends to divide the warbler takings fairly evenly between maze and mechanical traps. *Seiurus* (practically all *S. aurocapillus*) shows an overwhelming preference for level opening water traps. The Ovenbird seems to have great difficulty in negotiating the slotted (Mason) traps. The Junco and the Towhee show a situation which is nearly inverse to that of the Chickadee. Their preference for the ground seems to be the real reason for the preponderance of captures in maze traps. Seed is clearly much more attractive to them than water. None of the water traps were operated during the period of Goldfinch trapping. Goldfinches probably prefer to feed off the ground but this preference is not strong and is easily outweighed by their tendency to decoy. Hence, the maze traps take especially well, even on the ground.

Maze traps of the Mason (slot) or Modesto type (turn) have some advantage over the Potter type trap. In the latter type there is no special gain in having the chamber more than large enough to accommodate the bird, say 6 inches square and 10 inches deep for birds up to the size of a Jay. This puts the bait far enough back of the treadle so the bird does not reach the bait without stepping on the treadle. Since maze traps accumulate birds, in general, the larger the chamber the larger the take. Each species has its own limit. As a rough estimate each maze trap two to three feet on a side is the equivalent of at least three Potter traps. For Goldfinches the ratio is nearer six to one while it is hardly two to one for Chickadees or Towhees.

As far as my own series of trials goes, there are a few general conclusions as to the best traps: warblers — level opening water traps; Chickadees — level opening seed baited traps above ground; ground feeding fringillids — slot entrance seed baited traps on ground; Gold-

TABLE II

Group	Chickadee	Warblers	Seturus	Junco	Towhee	Goldfinch
Level opening, on ground, seed	6.8	0.	3.6	4.0	2.5	7.7
Slot opening, on ground, seed	2.4	1.3	1.0	6.5	27.0	11.6
Level opening, on platform, seed	47.0	1.0	0.	1.0	+	1.0
Top opening, in tree, seed	18.2	23.4	0.	0.	0.	4.0
Level opening, on ground, water	1.0	1.3	3.9	2.5	3.0	—
Slot opening, on ground, water	0.	1.5	0.	0.	1.0	—
Top opening, on ground, water	3.0	3.9	0.	0.	0.	—
Totals	78.4	20.8	8.5	14.0	33.5	24.3
Maze traps	1.0	1.4	1.0	6.8	10.3	5.1
Mechanical traps	7.7	1.0	1.0	1.0	1.0	1.0
Totals	8.7	2.4	2.0	7.8	11.3	6.1

* + indicates too few takings to be worth calculating.

finches — seed baited maze traps. These conclusions are, of course, biassed by the fact that certain combinations of variables were not tried. Conclusions reached by other observers should be similarly inspected for bias. Seasonal differences should also be examined.

REFERENCE CITED

BLAKE, C. H. 1949. How much does a trap capture? *Bird-Banding*, 20:182-185.
Massachusetts Institute of Technology, Cambridge, Massachusetts

A TOP-OPENING TREE TRAP

BY CHARLES H. BLAKE

Hollom (1950: 13 and Fig. 8) describes a small, modified chardonneret trap. As shown in Fig. 1 I have further modified this, making it entirely of half-inch hardware cloth with a 5" x 6" entrance, and adding a bail. The door is made enough longer than the entrance so that when closed it overhangs the front edge of the trap a little. The tripping perch is conveniently cut from a quarter-inch thick twig. It may be lower than is shown in the sketch. The door is powered by a thin elastic band attached near the hinge and running downward and forward as shown. A very long elastic may be run across the bottom of the trap and part way up the far side. The tension, when the trap is set, should not be much greater than with the door closed.

