

Trapping Fabre's "Sexton" Beetles

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Teachers looking for outdoor activities for their students would do well to consider the proposals suggested by the author. These ideas are outgrowths from work done as a graduate student at Rutgers.

Many biology teachers and some biology students have read about "burying beetles" in the literature. Fabre's classic works include detailed descriptions of the burying habits of these interesting insects which he called sexton beetles (1899). Other writers, in more recent years, have also discussed their interesting habits (Milne and Milne, 1945).

We have studied this family of beetles (Silphidae) during the last six summers and have never failed to be intrigued by them (Shubeck, 1967). Our studies were conducted in Hutcheson Memorial Forest, Middlebush, New Jersey.

We wonder how many biology teachers have seen these relatively large, brightly colored beetles or how many biology teachers realize how easy it is to trap them, assuming they are normally present in a given area. Fabre used to capture them by scattering an abundant supply of dead moles in his orchard.

During the first few summers of our work we simply buried a number 10 can with the open end level with the surface of the soil

(Walker, 1957). A chicken leg served as bait and a foot-square piece of galvanized metal resting on branches and stones kept the rain out of the can. Although this trap had been successfully used by us, and by others, we found that the meat was occasionally removed, apparently by carnivorous mammals.

Early in the summer of 1964 we devised a very simple air-can trap which was successfully used through the season without loss of carrion. The only materials required to construct this carrion beetle air-can trap are:

- 1) 2 number 10 cans (these are gallon-size food cans which are discarded in large numbers at restaurants and cafeterias)

- 2) 2 wire coat hangers

- 3) about 15 feet of cord or heavy string

The tools required are an electric drill with a 3/16" bit, a pair of metal cutting shears and a pair of wire cutters.

Two pairs of holes are drilled in a can 1 1/2" apart and 1/2" below the rim at opposite sides of each other. Two or 3 holes can be drilled in the bottom of the can to permit

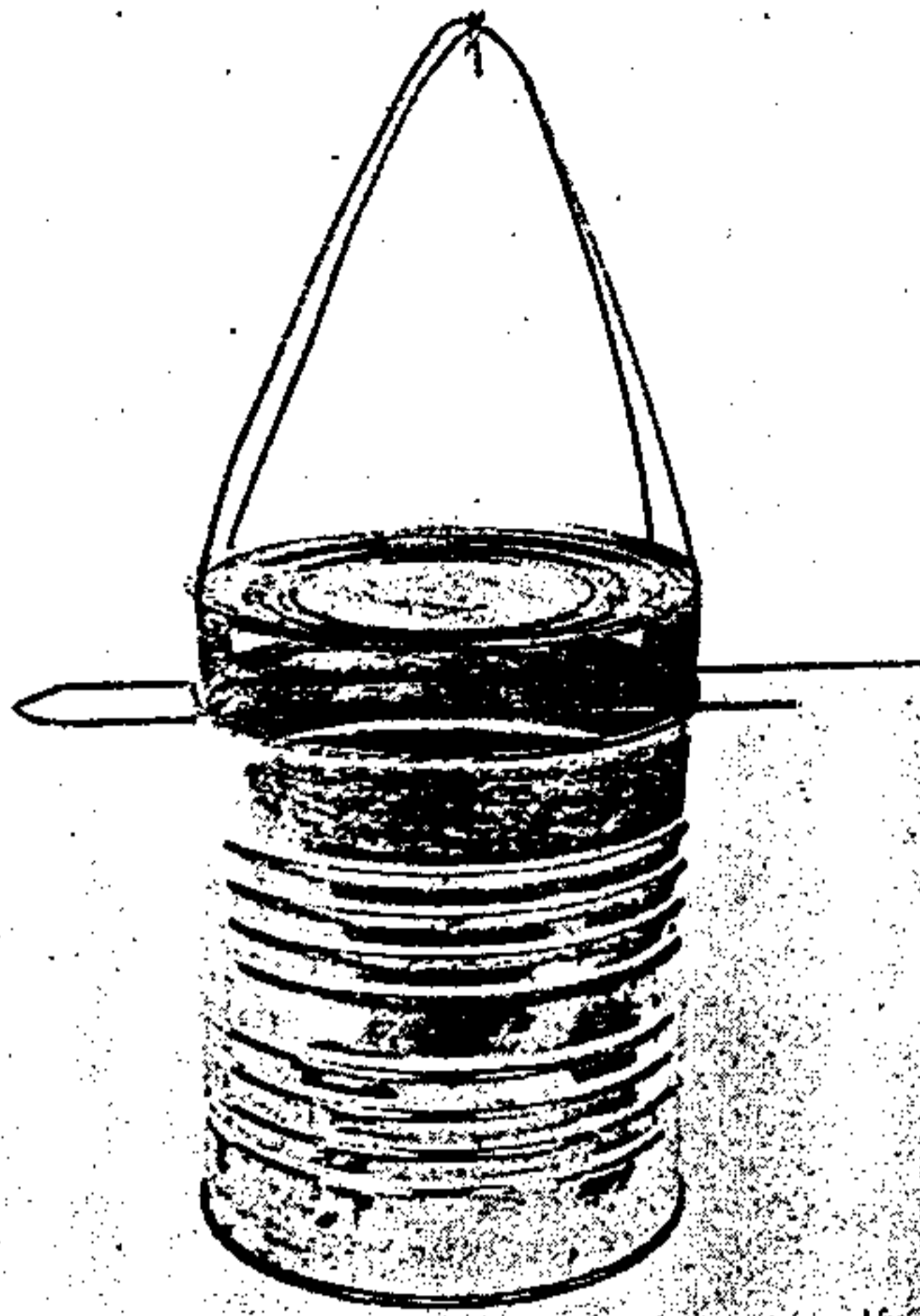


Fig. 1. Beetle trap constructed from a wire coat hanger and two number ten cans.

draining of rain water.

The bulk of the second can is cut away so that the remaining portion of the can serves as a top for the first can. A pair of holes is drilled on each side of the supporting section of the top.

The hook of a wire coat hanger is snipped off and the wire reshaped to match Fig. 1.

The three parts of the trapping can are put together. The second can is inserted into the first can so that the holes meet. The wire is inserted through the holes. The second coat hanger is reshaped to serve as a hanger for the trapping can which is then suspended about 5 feet above the ground.

The trap is baited with a chicken leg or any other carrion. In our work we found that the bait was very "attractive" to carrion beetles from the fifth to the tenth day after having been left to decompose. The beetles apparently cruise through an area until they are close enough to detect the odor of carrion and locate it.

We have taken seven species of Silphidae in these traps at Hutcheson Memorial Forest.

Two genera are represented. Among the "burying beetles" we have trapped *Nicrophorus orbicollis*, *N. tomentosus*, and *N. pustulatus*. The "carrion beetles" taken include *Silpha americana*, *S. noveboracensis*, *S. inaequalis*, and *S. surinamensis*. "A Manual of Common Beetles of Eastern North America" (Dillon and Dillon, 1961) served as an excellent aid in identification.

These seven species of Silphidae have been taken by other workers as far north as Irondale, Ontario, as far west as Minnesota, and as far south as Tennessee and South Carolina.

Any high school teacher using the BSCS Green Version biology textbook who is looking for projects can develop a number of ecological studies involving the trapping of burying and carrion beetles. Several suggestions follow:

1. Is orientation of carrion beetles to carrion random or non-random? Beetles can be marked with finger nail polish and released at various distances.

2. How abundant are populations in a given region? The Lincoln Index is a very simple tool for estimating populations. Marking and releasing beetles is also involved here.

3. At what seasons of the year are the carrion beetles most abundant? The trapping can be done over a five or six month period of time.

4. Is there a succession of beetles during the 12 or 14 days the chicken leg is decomposing? The trap should be visited every two days and the results of the study plotted on graph paper.

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