

AN ALTERNATIVE TO PITFALL TRAPS IN CARRION BEETLE STUDIES (COLEOPTERA)¹

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ABSTRACT: A new design of a ground surface box-trap for carrion beetles is described. Eight months of continuous usage indicated that it is a useful and trouble-free trap for collecting carrion beetles.

DESCRIPTORS: Carrion beetle trap; Silphidae, Staphylinidae, Histeridae, Leiodidae, Scarabaeidae, Nitidulidae; Hutcheson Memorial Forest, N.J.

Several studies on carrion beetles have been published which utilized carrion bait that was simply left on the ground or suspended in the air. More recently, however, carrion-baited pitfall traps have become more popular and, in fact, Newton and Peck (1975) have published a paper describing such a trap in detail. Their discussion also includes much helpful related information, i.e. liquid preservatives for beetles collected, jars for storage, shipping, etc.

For my early studies on carrion beetles (1968; 1969) I found pitfall traps to be reasonably adequate yet occasionally troublesome. They can be vulnerable to carrion-feeding vertebrates unless screened carefully and anchored firmly. If anchored firmly, the container then cannot easily be removed from the ground when beetles are being collected. Some workers have successfully secured pitfall traps by piling stones (small boulders) over the covered opening (Newton and Peck, 1975; Pirone, 1974) but one is at a loss if boulders are not found in the collecting area. Furthermore, I have found pitfall traps to be subject to flooding in spite of holes that are drilled in the bottoms of the cans for drainage.

During the past seven years I have devised a variety of carrion beetle traps that have been placed on the ground or suspended above the ground (1971; 1975a; 1975b). Four traps of a ground surface box-type design (Fig. 1) were in continuous operation during an eight month long seasonal study (unpublished data). At no time was there the slightest evidence that any one of the traps was disturbed or that carrion had been removed (or cans flooded). Expensive locks, fixtures, or hardware are not required for their construction.

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The security of the trap depends on two pre-drilled holes through the lower portion of the box (one hole on each side). These two holes match up with two pre-drilled holes in wood blocks inside the box which are actually firmly attached to the trap platform. After placing carrion into a one-gallon can which is inserted up into the box assembly (which has 1/2" mesh screen on top), the entire unit is inserted under the rain cover and between the side supports of the cover and finally down, around and adjacent to the blocks upon which the can rests. At this time two large galvanized nails are manually inserted through the matching holes at the bottom of the box and in the blocks on the platform. This arrangement gives the appearance of a solidly nailed assembly having no detachable or movable parts. Since wood absorbs moisture and expands it may be advisable to have a pair of pliers handy when removing the nails and opening the trap for specimens.

Detailed diagrams, with measurements, for the above design have been

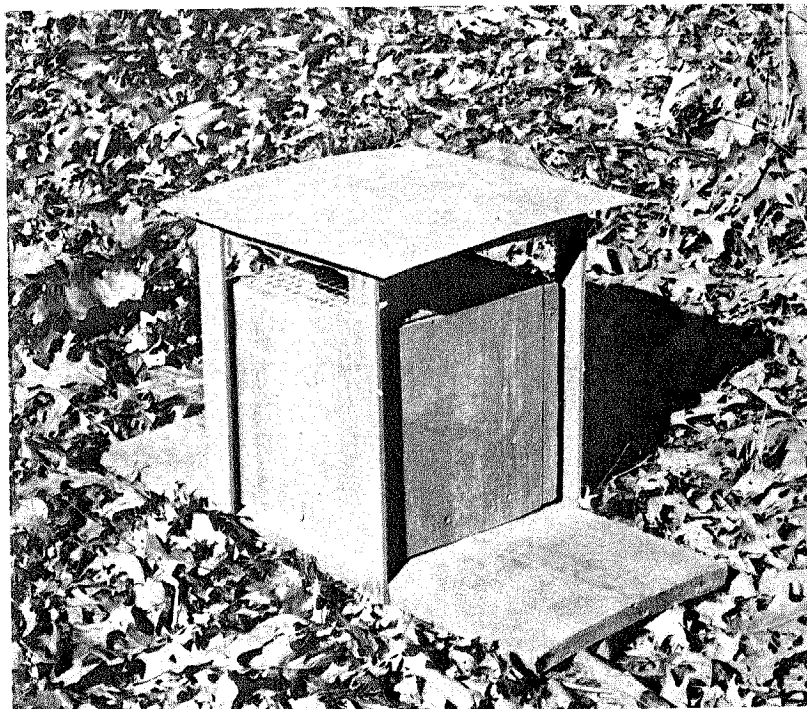


Figure 1. Carrion Beetle trap after 8 months of continuous use in Hutcheson Memorial Forest. Photograph by Thomas P. Shubeck.

duplicated by ditto machine and photocopier and copies are available to the reader upon request. This trap is relatively inexpensive to construct and it was found to be durable and trouble-free during eight months of continuous use in Hutcheson Memorial Forest (near East Millstone, N.J.). The four traps used in the project accounted for the collection of over 6700 beetles, or an average of 1675 beetles per trap. The overwhelming majority of beetles taken were Silphidae, Staphylinidae, Histeridae, Leiodidae (Catopinae = Leptodiridae), Scarabaeidae, and Nitidulidae. An ecological or systematic study of carrion beetles, that involves collecting, is by its very nature a foul-smelling experience. The satisfaction of using a clean, dry, efficient trap makes the job just a little less trying for the entomologist.

ACKNOWLEDGEMENTS

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