



A New Trap for Capturing *Diaprepes abbreviatus* (Coleoptera: Curculionidae)

W. J. Schroeder; I. F. Jones

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A NEW TRAP FOR CAPTURING
DIAPREPES ABBREVIATUS
(COLEOPTERA: CURCULIONIDAE)

W. J. SCHROEDER

U.S. Department of Agriculture—ARS
Orlando, FL 32803 USA

AND

I. F. JONES

Tri-State University
Angola, IN 46703 USA

Diaprepes abbreviatus L. is an important weevil pest of sugarcane, citrus, and many other commercial crops in the Caribbean Basin. It was first reported in Florida by Woodruff (1964). During 1968, 2,630 ha in the infested area were quarantined. Infestations are now distributed throughout 29,300 ha of commercial citrus in central Florida and 2,428 ha of outdoor nurseries and environs in south Florida. Because there has been no efficient method of detecting *D. abbreviatus* adult populations, recent research efforts have been directed toward developing a trap and trapping methods.

Previous trapping studies on this insect in citrus were conducted with light traps (Beavers et al. 1979) and sticky traps (Beavers, et al. 1982). Light traps were ineffective. Sticky traps are difficult to work with and cannot easily be placed in citrus trees where adult weevil populations are most abundant. Described here is a durable, lightweight trap without sticky surfaces that is more useful for detection and population survey of *D. abbreviatus*.

Initially, 2 trap designs (A and B) were studied. The traps were similar in that each was a screen (0.32 cm mesh) trap consisting of a 15-cm-diam x 16-cm-high cylindrical holding chamber (cricket cage) atop a 22-cm-diam x 20-cm-high screen cone with openings of 3.6 cm² and 380 cm². The two designs were different in that they had modified surfaces under the cone (Fig. 1).

Trap A had wire cloth vanes 38 cm long x 12.5 cm wide attached under the cone. A 2.7-cm-OD PVC pipe seated in the ground was used to support the trap so that the bottom of the vanes touched foliage in the upper canopy of the tree.

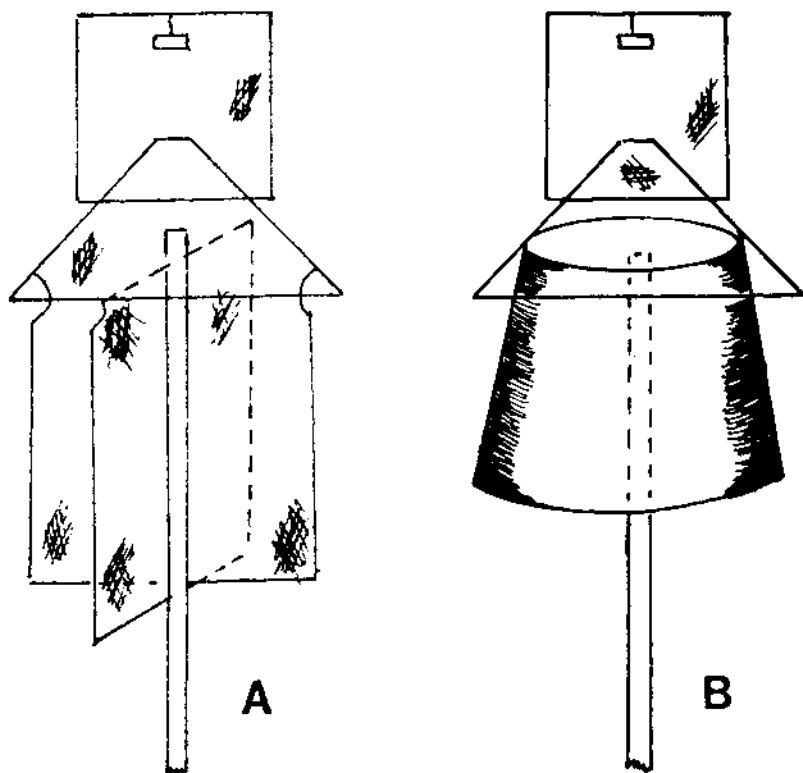


Fig. 1. *Diaprepes abbreviatus* trap designs: (A) 4 vanes, and B) plastic pot.

Trap B had a tapered (15 → 10 cm diam) 16-cm-high plastic pot attached beneath the cone. The pot was attached with wire to the cone so that a 2-cm space between cone and pot allowed weevils to enter the cage from outside the pot and through 2-cm² holes in the bottom of the pot. Traps were supported and placed as in trap A. This design was conceived as a way to incorporate trap color into trap design, but data on color effect are not reported here.

A chloroform extract of 20 g of frass from a mixed laboratory colony (1:1, ♂:♀) was used in the field tests in June to compare traps A and B. Extracts of frass contain an apparent attractant. Two ml of the extract (20 g frass in 225 ml CHCl₃) were soaked into a cotton wick suspended in the trap. Twenty each of traps A and B were then placed (1 trap/tree) in selected citrus trees (2 m high). All traps were re-treated daily with extract.

Low population levels of adults weevils in June necessitated a test period of 14 days to determine that trap A captured significantly more weevils ($\bar{x} = 2.2/\text{trap}$) than trap B ($\bar{x} = 0.5/\text{trap}$) (Student's *t* test, $P = 0.05$). A total of 43 (26♂ + 17♀) and 9 (7♂ + 2♀) weevils were captured in traps A and B, respectively.

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CORRELATIONS OF BURROW CHARACTERISTICS
AND BODY SIZE IN BURROWING WOLF SPIDERS
(ARANEAE: LYCOSIDAE)

GARY L. MILLER AND PATRICIA R. MILLER

Department of Entomology

Mississippi Entomological Museum, Drawer EM

Mississippi State University, Mississippi State, MS 39762 USA

The wolf spiders *Lycosa carolinensis* Walckenaer, *L. georgicola* Walckenaer and members of the genus *Geolycosa* (Araneae: Lycosidae) are similar in their use of constructed burrows for retreats (Wallace 1942). Some of the characteristics of the burrows constructed by *G. domifex* (Hancock) and *G. godeffroyi* (L. Koch) are positively correlated with the size of the spider inhabiting the burrow (McQueen 1978, Humphreys 1976, respectively). However, similar relationships are not known for *L. carolinensis* or *L. georgicola*. Although these 2 wolf spiders construct burrows, they retain many of the typical lycosid behavioral characteristics, notably the tendency to wander in search of prey (Kuenzler 1958, pers. observ.). Also only certain instars of *L. carolinensis* burrow (Shook 1979). Because of these life history differences we predicted that burrow characteristics, such as opening diameter, would not be as strongly correlated with body size for the 2 *Lycosa* species as in the *Geolycosa*. We attempted to verify this from field collections in Florida and Mississippi and from laboratory observations.

We collected specimens of *Lycosa carolinensis* (Levy county), *Geolycosa escambiensis* Wallace (Holmes County), *G. micanopy* Wallace (Alachua, Levy, Marion and Putnam counties), *G. ornatipes* (Bryant) (Levy and Putnam counties), *G. patellonigra* Wallace (Clay, Levy, Marion and Putnam counties) and *G. turricola* (Treat) (Alachua and Santa Rosa counties) in Florida between 5 and 10 December 1983. Specimens of *L. georgicola* were taken in Oktibbeha county near Starkville, Mississippi during the summer of 1983. All specimens were taken from burrows, and for each burrow, except those of *L. georgicola* and the laboratory populations, we measured the depth, the largest diameter of the burrow opening, the height of the turret when present (measured from ground level) and the distance across the burrow entrance between the 2 extreme points of the turret (when the turret was present) which we termed the "total burrow diameter". During