NOTE

A Device to Simplify Harvesting Subterranean Termites (Isoptera: Rhinotermitidae) from Laboratory Colonies

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Su (2002) reported that the economic impact of subterranean termites in the United States now exceeds $10 billion annually. Two genera of subterranean termites, Reticulitermes and Coptotermes (Isoptera: Rhinotermitidae), are responsible for most of the structural damage caused by termites in the United States (Su 2002). Because of their tremendous economic significance, subterranean termites are an important subject for entomological research. Researchers working in temperate regions must maintain laboratory colonies of subterranean termites for use during cold weather. These colonies are normally maintained in a granular substrate such as sand or vermiculate, which can be difficult to separate from the termites prior to assays (Haverty 1979, Lenz et al. 1987). Unfortunately, termites are easily damaged during handling, making their manipulation during bioassays problematic (La Fage et al. 1983, Su 2001).

While undertaking laboratory trials on Reticulitermes sp. feeding preferences and foraging behavior (Swoboda 2004), subterranean termites collected from the wild were maintained in plastic boxes (15 cm × 12 cm × 30 cm; Newell Rubbermaid Inc., Freeport, Illinois) containing damp vermiculite and blocks of white pine. A wooden sampling box was devised for concentrating a large number of termites in a secondary container, within the plastic box, thereby allowing termites to be easily harvested, without damage, for use in assays. Each plastic termite box was provided with one sampling box, which remained in the plastic box between uses.

Mortality due to handling was estimated to be <5% using this harvesting technique. Because termites within the sampling box were relatively free from vermiculate, cohorts of termites needed for bioassays could be aspirated quickly and easily. Moreover, because the sampling box is constructed in three parts, which are not physically connected to each other, sections can be replaced individually as the wood is consumed, minimizing the disturbance to the feeding termites.

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The sampling box was constructed from blocks of untreated white pine. It consists of three 10 cm × 10 cm × 2.5 cm blocks of wood. A 6-cm circle was removed from the center of one of the blocks of wood using a hole saw. A table saw was used to create grooves approximately 2-mm deep from across the block on both sides to provide access to the circular cavity (Fig. 1). The cavity in the center block was filled with four, damp, recycled brown paper towel sheets (Prolink™, San Antonio, Texas). The block with the hole and grooves was then placed between two intact blocks of the same size (Fig. 2).

Water can be added by pouring it directly onto the paper in the center of the sampling box when the vermiculate becomes dry. Rhinotermitids seek a satu-

Fig. 1. Photograph of the wooden block used to harvest termites, showing position of grooves and aperture created with hole saw.
rated atmosphere (Williams 1934) and will aggregate in the damp paper. When harvesting termites for an assay, lift the sampling box from the plastic container and empty the contents of the central aperture into an enamel pan. The plastic box containing the rest of the termites can remain closed during the harvesting procedure, limiting moisture loss.

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References Cited