

the equipment was set out after sunset to avoid human and domestic animal interference. We felt that although replicate islands would have enhanced the study, the subsequent bias of our later evening activity in setting tiles and traps would inject much bias by possibly affecting rodent and shrew movement patterns.

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Relative Capture Efficiency of Large and Small Sherman Live Traps

WZGLĘDNA EFEKTYWNOŚĆ MAŁYCH I DUŻYCH ZYWOŁÓWEK SHERMANA

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Maly M. S. & Cranford J. A., 1985: Relative capture efficiency of large and small Sherman live traps. *Acta theriol.*, 30, 8: 165—167 [With 1 Table]

In a study of small mammal populations on Assateague Island, Virginia, U.S.A., two species (*Microtus pennsylvanicus*, *Oryzomys palustris*) exhibited a significant preference for large rather than small Sherman live traps. Three smaller species (*Cryptotis parva*, *Mus musculus*, *Peromyscus leucopus*) did not show a significant bias with

respect to trap size. Differential effectiveness of large and small traps appeared to be related to size-specific behavioral responses and not to differences in trap sensitivity.

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INTRODUCTION

Numerous authors have reported on the relative efficiency of different types of small mammal traps (e.g., Rose *et al.*, 1977, Mihok *et al.*, 1982, Williams & Braun, 1983). However, only two studies have compared different sizes of the Sherman live trap, the type most commonly used by American researchers. Quast & Howard (1953) found large (254×76×76 mm) Sherman-type traps to be much more effective than small (164×64×51 mm) traps in capturing *Peromyscus* species in the San Joaquin Experimental Range, O'Neals, California. In contrast, Dalby & Straney (1976) found small Sherman live traps to greatly exceed large traps in numbers of white-footed mice (*Peromyscus leucopus*) captured in woodlands near Blacksburg, Virginia. In this report, we document the relative efficiency of large and small Sherman live traps in capturing five species of small mammals (including white-footed mice) on Assateague Island, Virginia, U.S.A.

Table 1
Captures of small mammals in small and large Sherman live traps

Species	Number of indiv.	Mean wt., g	Captures		χ^2	P-value
			Large traps	Small traps		
Least shrew	30	4.1	15	18	0.27	NS
House mouse	67	12.4	47	55	0.63	NS
Meadow vole	85	40.0	117	88	4.10	<.05
Rice rat	80	46.6	97	62	7.70	<.01
White-footed mouse	15	17.7	15	16	0.13	NS
Meadow jumping mouse	4	12.3	2	2	0.00	—

METHODS

As part of a study on small mammal competition and resource utilization, trapping was conducted at bi-monthly intervals from August 1983 to January 1984. During each trapping period, one large (279×89×76 mm) folding and one small (165×64×51 mm) nonfolding Sherman live trap were placed at each of 243 trap stations located in three 9 station by 9 station permanent trapping grids. These grids encompassed dune grassland, freshwater marsh, pine woodland, shrub, and salt marsh habitats (Higgins *et al.*, 1971) on Chincoteague National Wildlife Refuge, Assateague Island, Virginia, U.S.A. Traps were baited with rolled oats and checked twice daily for five days during each trapping period. Both traps at a trap station were located in similar microhabitats and near evidence of small mammal activity (e.g., runways, plant clippings) whenever possible. A total of 9720 trap nights were completed during the study.

RESULTS

We captured six species of small mammals for a total of 535 captures (281 individuals). Three species, least shrews (*Cryptotis parva*), house

mice (*Mus musculus*), and white-footed mice (*Peromyscus leucopus*), showed no significant trend with respect to large and small traps (Table 1). Rice rats (*Oryzomys palustris*) and meadow voles (*Microtus pennsylvanicus*) were captured significantly more often by large traps than by small traps. Meadow jumping mice (*Zapus hudsonius*) were captured too infrequently to establish a trend with respect to trap size. The relative efficiency of large and small traps in capturing small mammals did not differ significantly among different trapping periods ($\chi=4.15, P>0.20$).

DISCUSSION

Our results indicate that large and small Sherman live traps are equally effective in capturing the smaller mammals species (mean wt 4—18 g) while the larger species (mean wt 40—47 g) were more readily caught in large traps. These findings differ considerably with those of Dalby & Straney (1976) who reported greater efficiency of small traps in capturing white-footed mice. Dalby & Straney concluded that the lower effectiveness of large traps resulted from greater treadle insensitivity to smaller (lighter) mammals. We found no evidence to lower treadle sensitivity in large or small traps since even 4 g least shrews were caught equally well by either size trap. Therefore, the greater effectiveness of large traps in capturing meadow voles and rice rats was probably due to differential behavioral responses by these species to differently-sized traps.

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