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BRIEF NOTE

IMMIGRATION BY WHITE-FOOTED MICE (PEROMYSCUS LEUCOPUS): ABSENCE OF FEMALES

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Immigration into an area following artificial depletion occurs rapidly in Peromyscus, but little information on the sex of invading animals is available (Blair 1940, Stickel 1946). Males move further than females and have larger home ranges (Stickel 1968). Also, sex ratios in natural populations slightly favor males in P. leucopus (55%) (Terman and Sassaman 1967). For these reasons one would expect a larger number of males to appear on a trapped-out grid. However, in other Cricetids, such as Microtus, young females disperse more frequently than males (Krebs et al 1973). The purpose of our study was to determine the sex of invading animals after removal trapping in a 1.36 ha grid.

A 54-point grid (9 x 6) was established along the floodplain of the N. Branch of the Portage River, 6.4 km east of Bowling Green, Wood County, OH. Overstory vegetation was predominantly sugar maple (Acer saccharum), slippery elm (Ulmus rubra), white ash (Fraxinus americana) and basswood (Tilia americana). Sherman traps, 15 m apart, were baited with peanut butter and checked each morning. Starting on 28 September 1976, trapped mice were ear-tagged, weighed, sexed, checked for reproductive condition, and released at the site of capture for 5 consecutive days. From 3-7 October all mice captured were removed. Marking and releasing was resumed on 8 October for 18 consecutive days.

Forty-six mice were taken, during removal trapping, from a population estimated at 68 (Jolly method). Populations this high have previously been reported in northwestern Ohio (Rintamaa et al 1976). During the subsequent 18 days of marking and releasing, 59 different mice were trapped, of which 9 (3 females and 6 males) had been marked and released during the pre-removal period. The remaining 50 mice, newly caught, were all males. These males were significantly lighter than males caught during the first 5 days (15.6 g ± 0.6 vs. 19.0 g ± 0.7 SEM; p < .01). Only 28% of these newly caught males were adults, based on the presence of brown pelage (Gottschang 1956). The 50 males were recaptured an average of 3 times each during the 18 days, suggesting that they were immigrants rather than transients. By the end of the 18 day repopulation assessment, the population was estimated at 48 (i.e., 70% of the original population density).

Although slightly more males than females were expected to immigrate into the artificially depleted area, the absence of females is puzzling. Fall-born white-footed mice are thought to overwinter with parents and disperse to breed in the spring (Nicholson 1941). Our results suggest that young males are capable of dispersing in the fall and establishing home ranges, perhaps to be joined by females for spring breeding. Such a response might be adaptive if females are a limited resource for which males compete (Emlen and Oring 1977), as is suggested by a male-female sex ratio in favor of males for this genus.
LITERATURE CITED