SMALL-MAMMAL USE OF REFUGIA FOLLOWING PRESCRIBED BURNING

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ABSTRACT

Only 11 papers have been published about the effects of prescribed burning on small mammals in Florida, and few of them have documented how small mammals survived fire and repopulated burned sites. This study was carried out in Cedar Key Scrub State Reserve to establish: 1) if small mammals used wetlands as temporal refuges following prescribed fire; and 2) if prescribed burning had a negative effect on the survival of the species. The experimental design consisted of two treatments and two control sites that were sampled before and after prescribed fire from December 2003 to August 2006. A total of 29,340 trapping-nights were completed in treatment and control sites. Each site had a grid (100 traps) and a wetland next to it with two transects (10 traps each). Mice were marked to monitor movements between scrub and the vegetation surrounding wetlands during four trapping sessions before and after prescribed burning. A total of 184 individuals of *Sigmodon hispidus* (cotton rat), *Podomys floridanus* (Florida mouse), *Peromyscus gossypinus* (cotton mouse), and *Ochrotomys nuttalli* (golden mouse) were monitored during this study. In treatment sites, mice were captured mainly in the scrub (75%) before burning, they used the vegetation surrounding wetlands as temporal refugia for 11 months after burning, and they returned to the scrub after that. In control sites, mice were captured mainly in the scrub (91%) during the study. MARK analysis was only carried out on *Sigmodon hispidus* and *Podomys floridanus* because of the small sample size obtained for the other two species. MARK indicated that fire did not have a negative effect on the survival of *Sigmodon hispidus*. We could not conclude the same for *Podomys floridanus* because the β parameter was not estimable. However, the data indicated that *Podomys floridanus* moved to wetlands and survived for 11 months. These results suggest that if no refugia are provided during prescribed fire, wetlands next to the burned areas should not be burned. Wetlands should be burned a year after mice have returned to burned areas.

Keywords: prescribed fire, refugia, scrub, small mammals.

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