Cottontail Rabbit Utilization of Artificial Burrows In East-Central Indiana

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Introduction

Changes in land-use associated with modern agriculture and expanding urbanization are destroying large areas of wildlife habitat including natural animal burrows or dens. When an animal's habitat is destroyed it is either driven from the area or it disappears altogether. As a part of habitat restoration for certain species of terrestrial mammalian wildlife in the midwest, an alternative to the destroyed dens must be provided. Man-made structures (i.e., artificial burrows) may be one alternative.

Time or seasons of year that an artificial burrow will be of most value to cottontails, *Sylvilagus floridanus*, is unknown. Vegetative cover type preferences of burrow-using cottontails have not been investigated. This preliminary investigation was conducted to determine if artificial burrows can be constructed that will be used by east-central Indiana cottontails.

Methods and Materials

The lay-up chamber of each artificial burrow was constructed from the upper portion of a 55-gallon steel drum. Each drum was cut transversely 41 cm below the top. On the top end of the drum a removable lid was attached and the open (bottom) end was secured to a square wooden frame. Each open wooden frame was constructed from 4" x 4" timbers to form a square foundation. A 10 cm diameter plastic soil drain pipe, 120 cm in length, was inserted into each of two opposing 13 cm diameter holes cut in the drums directly above the wooden frames. These pipes were used as entrance ways into the burrows and were arbitrarily aligned in a north-south direction as the burrows were constructed. The burrows were surrounded with fill-dirt up to the lids, covering the entrance tunnels to their openings. Ryegrass, *Lolium* sp., was sown on the fill-dirt.

The 16 burrows were placed at 50 m intervals in four adjacent vegetative cover types including fescue, *Festuca* sp., grassland; multiflora rose, *Rosa multiflora,* hedgerow; ungrazed deciduous forest; and woody wildlife plantings.

Captured cottontails were examined and ear tagged prior to release.

Results

A total of 56 inspections of each burrow was made during the winters of 1976-1977 and 1977-1978. Cottontail rabbits were the only wildlife species found in the burrows. There were 36 cottontail captures including seven individuals

captured two or more times. No cottontails tagged during the winter of 1976-1977 were recaptured the following winter.

Cottontails were captured in burrows in all study cover types. A Chi Square analysis was done to test the hypothesis that there was no difference in burrow utilization due to cover type. The hypothesis was rejected at the .01 significance level. A total of 75 percent of all captures was made in the forest and in the multiflora rose.

Results of regression analysis on capture versus mean air temperature gave an R value of -0.5. The presence of precipitation in some form may have more influence than air temperature on the incidence of burrow utilization by cottontails. Every cottontail capture occurred while rain or snow was falling or while snow covered the ground.

It appears that cottontails will utilize artificial burrows during times of active precipitation or snow cover. Frequency of usage of burrows constructed as described in this paper will vary with cover type.