

# TWENTY-FIVE YEARS OF OAK-MAST SURVEYS AND ALLEGHENY WOODRAT POPULATIONS IN WESTERN MARYLAND

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**Abstract**—Allegheny woodrats (*Neotoma magister*) occur on rocky outcrops, cliffs, and caves in oak-dominated forests where they play an important role dispersing fruits and nuts and altering vegetation. The decline of the Allegheny woodrat corresponds with the loss of *Castanea dentata* (Marshall) Borkh., and currently acorns from oak (*Quercus* spp.) are their most important food source. Since 1991, acorn production and extant woodrat populations have been monitored in western Maryland in the Appalachian Plateau, eastern Ridge & Valley, and Blue Ridge physiographic regions. Mean number of acorns per branch were recorded from the same 10 trees from white oak (*Lepidobalanus*) and black oak (*Erythrobalanus*) groups within each region. Woodrat populations were monitored using two consecutive night mark-recapture techniques. On the Appalachian Plateau, bumper crops of black oak acorns were followed by an increase in woodrat captures 75 percent of the time. Mast failures were followed by sharp declines in woodrat captures 100 percent of the time. In the eastern Ridge and Valley region, there have been no bumper crops and limited fair-good years for white oaks as well as sharp declines in woodrat captures. In the Blue Ridge, there have been limited bumper mast events of white oaks, but fair-good years were followed by an increase in woodrat captures 100 percent of the time ( $R = 0.575$ ,  $P\text{-value} = 0.05$ ). Additional factors influencing the woodrat may include habitat fragmentation, gypsy moth defoliation, and raccoon roundworm. Allegheny woodrat population numbers may improve with supplemental planting of mast species less impacted by gypsy moth.

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