

The effect of white-tailed deer on forest bird populations

Browsing by ungulates can cause measurable changes throughout a forest ecosystem, affecting the cycling of nutrients, energy flows across trophic levels, food webs, species composition, and the relative abundance of herbaceous and woody plants. In the United States, the conservation of game raised the densities of deer beyond previously known magnitudes. White-tailed deer (*Odocoileus virginianus*) are dominant herbivores in the eastern United States and may play a significant role in the structuring of forest ecosystems and the shaping of food webs. Such effects should be particularly noticeable in bird populations because bird species are sensitive to changes in vegetation volume and composition. W. J. McShea and J. H. Rappole monitored the density and diversity of vegetation and birds in eight 9.9-acre (4-ha) sites in northern Virginia to determine the effect of white-tailed deer on forest bird populations (2000. Managing the abundance and diversity of breeding bird populations through manipulation of deer populations. *Conservation Biology* 14 (4):1161–70). Four of the sites were fenced to exclude deer.

The density and diversity of plants in the understory of the fenced sites increased significantly. The abundance of birds, especially of species that feed on the ground and in the intermediate canopy, increased after the exclusion of deer. However, the species diversity of birds did not increase because the bird species changed with the succession of understory vegetation.

McShea and Rappole concluded that in protected areas deer may cause significant changes in the abundance and species composition of birds and that such changes can be reversed by removing deer to increase the diversity and density of understory vegetation.