

Applications of Geographic Information Systems and Related Technologies in the Analysis of Human/Wildlife Interactions in an Urban Forest

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Abstract: This study is part of a participatory partnership between Tennessee State University and the non-profit organization Friends of Radnor Lake. Radnor Lake State Park, established in 1973, is Tennessee's first State Natural Area. The Radnor Lake watershed, surrounding the 85-acre lake, is home to an ecologically diverse 1,100-acre urban forest and is located only six miles south of downtown Nashville, Tennessee. Geographic Information Systems (GIS) technology is being used to assess the potential impacts of urban sprawl, which is encroaching upon the fragile environs of the park. The purpose of this research is to assess the nature of interactions between the human population in residences near the park, and the area's coyote and deer populations. Since both coyote and deer inhabit a wide range of habitats, it is not uncommon to view them in a natural setting at Radnor Lake. The Natural Area itself is comprised of the lake and its marshes and dense woodlands with ample thickets for foraging and hunting. With its rolling hills, steep ridges, and open grassland it is an ideal home for both species. The land surrounding Radnor Lake State Natural Area mimics the geology of the park. Wildlife of the park know no boundaries, therefore, the coyote and deer that inhabit the park are unfortunately considered pests by some of the local residents. The information compiled from this study will assist the rangers at Radnor Lake State Natural Area in protecting and managing the wildlife habitat associated with the watershed area. The first two phases of this study include estimating the size of coyote and deer populations, studying their movements and migration patterns, and analyzing their behavioral patterns. At the completion of the study, the data collected will enable the Radnor Lake staff and the Friends of Radnor Lake to provide environmental education programs emphasizing the urban forest's important function as a viable ecological habitat.