Abstract

This project explores the growth and changing conditions of forest plants in the diverse plant communities of the Thomas, Wysong, and Byer woodlands of Merry Lea Environmental Learning Center (Wolf Lake, Indiana). The research was driven by the following questions:

What plant species are found in the interior forests of Merry Lea?

What invasive species are found in these forests, and if so, which ones and how abundant?

What is the relationship between tree canopy, shrub and herb layers in these forests?

The forests overall were diverse both in plant species and abundance. There were significant disturbances in the forests such as deer trails, trash and fallen trees which affected plant growth and presence of invasive species. The study was conducted in the interior plots of the Thomas, Wysong and Byer woodlands of Merry Lea Environmental Learning Center. Each plot was 10m in diameter and 50m apart. The focus of the research was to provide a description of the plant community and important environmental variables at each plot.

Results

The forest plots were diverse in terms of composition and structure. Thomas was different in terms of species richness as it had the least number of species in the shrub and herb layers with an average of one and nine species per plot respectively. Interestingly, Thomas also had the highest number of tree species with an average of four per plot. The largest and most abundant tree species observed in Thomas was the American Hophornbeam. Wysong was observed to have the largest trees in diameter and the most herb and shrub cover, probably due to its richer soil content. (Table 1) Byer has the highest species richness in the shrub and herb layer, containing an average of three and thirteen species per plot, respectively.

Discussion

This study provides information about interior forest plant composition and species interactions as well as a greater understanding of the connections between diverse species and environmental factors. The ordination shows that the environmental factors of canopy cover, litter depth and soil type influence the plant community in the forest. This is true especially for soil type, which is a major underlying factor in plant growth. It was also observed that larger shrubs correlated with larger trees, where as herb cover has no relationship with tree size. Invasive species such as garlic mustard and multiflora rose were observed both along the edges and in the interior of the forest. Interestingly, however, there was significantly less invasion in the interior of the forest compared to what was observed at the edges. Higher growth rate of invasive species were observed where disturbances such as deer trails, trash and fallen trees were present. These conclusions may be useful in making recommendations for various management practices, including those related to invasive plants.