

# INVASIVE PLANTS IN THE GORDON NATURAL AREA: INFLUENCE OF PAST LAND USE ON COVER OF SELECTED INVASIVES

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## ABSTRACT

The 150-acre Robert G. Gordon Natural Area (GNA) on the campus of West Chester University was dedicated in 1973 for education, research, and protection of biodiversity. During 2002-2003, 18 forest health monitoring (FHM) plots, each composed of four (24- ft- radius) subplots, were established at the GNA following protocols developed by the U.S. Forest Service. Vegetation was surveyed in the plots to evaluate how land use history affects the colonization and success of the four most common invasive exotic species. Initially, only exotic trees were measured, but all vegetation was measured in 2004. Each exotic species was recorded, and cover (0-2, 2 to 6, 6 to 16, and 16+ft) was estimated for those species greater than 1% cover. FHM plots were classified to represent five past land use history categories: (1) old farm field; (2) floodplain; (3) large forest fragment; (4) small forest fragment; and (5) old orchard. The four invasive exotic species were

Norway maple (*Acer platanoides* L.), tree-of-heaven (*Ailanthus altissima* (Mill.) Swingle), Japanese stilt grass (*Microstegium vimineum* (Trin.) A. Camus), and Japanese honeysuckle (*Lonicera japonica* Thunb.). Norway maple dominated the orchard and large forest fragment, Japanese stilt grass dominated the floodplain, Japanese honeysuckle dominated the old farm field, and tree-of-heaven dominated the small forest fragment, suggesting that different land uses may influence exotic presence after regeneration. While habitat canopies were dominated by native species, dramatic reductions in abundance by most native understory trees since 1970, and arrival by invasive exotic species across habitats (and deer), suggest that forest composition will change at the GNA to include more beech and white ash, but fewer tuliptree, hickories, and oaks. Exotic species will dramatically increase in abundance unless their recruitment is managed.