EMERGING ISSUES IN NORTHERN HARDWOOD MANAGEMENT:

AIR POLLUTION, CLIMATE CHANGE AND BIODIVERSITY

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ABSTRACT - POSTER/COMPUTER DEMONSTRATION

GEOGRAPHIC INFORMATION SYSTEMS FOR SPATIAL ANALYSIS AND LANDSCAPE DESIGN IN NATURAL RESOURCE MANAGEMENT

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The use of Geographic Information Systems (GIS) in conjunction with the Ecological Land Classification Systems (ECS) currently implemented on several Lake States' National Forests is a powerful tool for managing forest resources. The cartographic and multiscale nature of ECS makes it amenable to digitization and analysis in the GIS environment. Information related to cover type, site productivity, ground-flora composition, thermal cover, and other forest and wildlife management variables can be linked directly to ECS map units. For wildlife management purposes, GIS provides the ability to query the forest resource database to identify areas fulfilling particular size, cover, habitat, and forage requirements. For species such as black bear, whose habitat spans broad geographic regions and whose forage/cover requirements vary by season, the spatial analysis abilities of GIS allow the identification of areas with a suitable complex of ecological land units. More importantly, the combination of GIS and ECS can aid in developing a strategy for landscape design that embodies the principles of integrated resource management. We present here a demonstration of the use of ECS information incorporated into a GIS to determine suitability of regional-scale habitat for management of black bear.

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