

## REMOTE SENSING AS AN INNOVATIVE MONITORING TOOL FOR INVASIVE SPECIES AND WATERSHED APPLICATIONS

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**Project Costs:** \$108,650 (K&A \$20,000)

**Date of Completion:** Ongoing, with final reporting in December 2005

The Kalamazoo Nature Center, in partnership with K&A, has been awarded a Clean Michigan Initiative Grant for monitoring the spread and control of purple loosestrife in a 64,000-acre area in Kalamazoo County, Michigan. The majority of the Portage/Arcadia Creek drainage ([www.kalamazooriver.net/pa319new.htm](http://www.kalamazooriver.net/pa319new.htm)) is included in the study area. Purple loosestrife is a successful invasive plant in wetlands and other moist habitats in the Great Lakes region. By out-competing native plants in infested areas, purple loosestrife has contributed to declines in native plant and animal biodiversity, and fish spawning habitat. Predatory beetle releases are increasingly being used as a biocontrol method and have been shown to lessen the impact of loosestrife invasions by reducing plant health and reproduction success.

Using airborne hyperspectral remote sensing techniques, this project will locate and evaluate purple loosestrife patches and effects of local loosestrife biocontrols. Airborne remote sensors will acquire aerial imagery at a resolution of 0.75-meter pixels across 48 spectral bands. Ground data will be collected to use for image analysis. This project will produce a continuous spatial coverage of the purple loosestrife presence and health in the study area over a very short period of time. This will provide a clear understanding of current conditions and the effectiveness of loosestrife biocontrols.

In addition to information related to purple loosestrife, the resulting high-resolution hyperspectral dataset can be used to evaluate other useful watershed management concerns including land use, forested and riparian corridors, disturbed land surfaces (construction areas), and other environmental parameters of interest.

