

FACT SHEET

“CURRENT APPLICATIONS”
PUBLIC OUTREACH SERIES

Funding for this project has been provided by the United States National Park Service through the Prairie Cluster Long Term Ecological Monitoring Program (LTEM). Peter Budde and Dr. Gary Willson, NPS Great Plains Cooperative Ecosystems Studies Units

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Introduction

Three historical parks in the mid-western United States, Effigy Mounds National Monument (EFMO), northeastern Iowa, Wilson’s Creek National Battlefield (WICR), southwestern Missouri, and Pipestone National Monument (PIPE), southwestern Minnesota are faced with the pressure of anthropological changes in the landscape surrounding them. The issue of how to manage the landscape of a U S National Monument dedicated to preserving a historical theme is the focus of this study. The U S National Park Service is collaborating with UNL-CALMIT to document land use/land cover changes in these parks during the last 60 years to facilitate management decisions for the protection of America’s heritage.

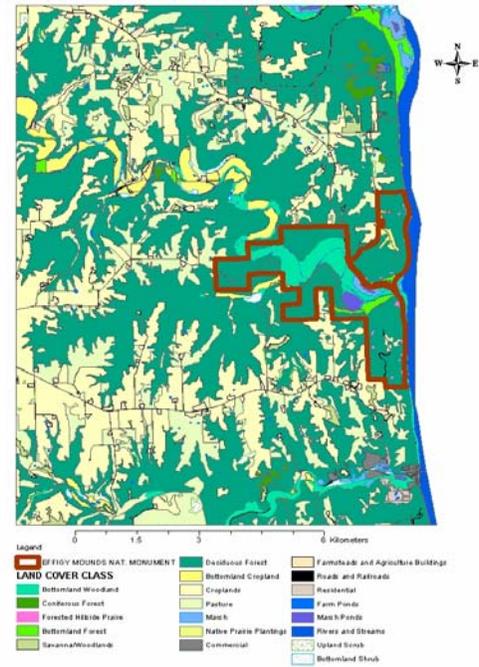
Results

Visual interpretation, vector digitizing of land cover classification and change detection analysis based on Space Imaging IKONOS imagery and USGS mosaics digital orthophotography of EFMO implies that 50% of the study area is covered by deciduous forest (dark green). However, nearly 35% of the land area is represented by cropland (light tan) and pasture (light green), thus signifying the impact of anthropogenic activities within the region. It should be noted that deciduous forests in this study area exist in rather large sizes (mean patch size being 118 ha). This would be important from the perspective of species that require large and contiguous sustenance habitat. However, the variability in the patch sizes (based on the standard deviation) means that there are considerable differences in the size and contiguity of the forested lands.

Conclusions

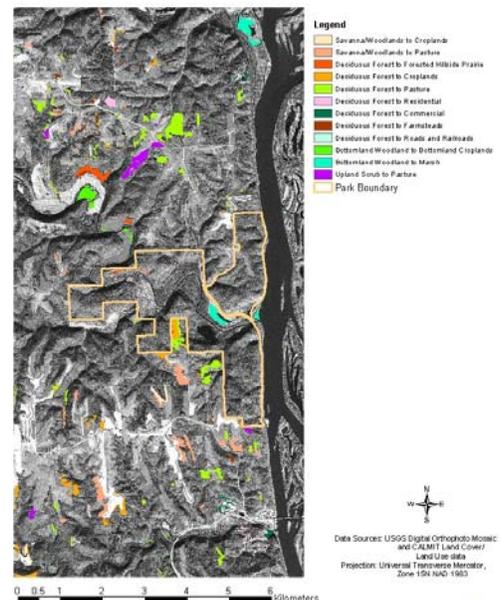
The preliminary results for this ongoing study are helping the NPS Prairie Cluster parks to support their goals for ecological management of these important albeit small pieces of American history. Advanced landscape metrics will help assess changes of natural habitat, habitat alteration in and around the LTEM sites, as well as determine the spatial location of rapidly developing areas, and invasion corridors for exotic species. Temporal analyses (Lower right CALMIT map) will also provide information on how the changes over six decades might affect the regenerative capabilities of native species. In addition from each park, a map of an 80-km radius at a coarser 30 meter resolution from the National Land Cover Characterization Project 2001 will provide a regional perspective of the spatial extent, distribution, and connectivity of natural areas, and allow consideration of how the Prairie Cluster parks fit into regional landscape dynamics.

EFFIGY MOUNDS NATIONAL MONUMENT LAND USE/LAND COVER 1990s



EFFIGY MOUNDS LAND USE/ LAND COVER (1990s)

CHANGES IN "NATURAL" HABITAT AT EFFIGY MOUNDS NATIONAL MONUMENT 1940s - 1990s



AN EFFIGY MOUNDS NAT. MONUMENT SCENE IN THE NORTH EAST CORNER OF THE CLASSIFICATION MAP VIEWING SOUTHERLY ALONG THE MISSISSIPPI RIVER (Photograph courtesy of NPS)



Cooperatively developed by CALMIT- University of Nebraska and U. S. National Park Service.



CHANGE DETECTION (1940s TO 1990s)