

Ecological Land Cover Classification For a Natural Resources Inventory in the Kansas City Region, USA

by

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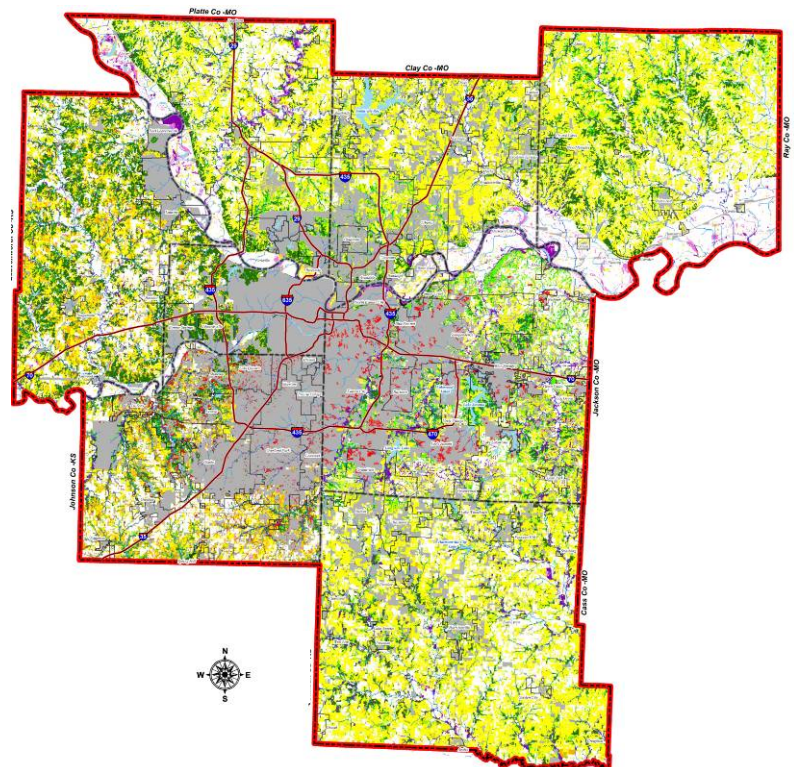
Executive Summary

The Kansas City metropolitan region historically was the gateway to the Great Plains, and to this day it harbors high quality natural resources and vegetative species reminiscent of those seen by early settlers. In the 150 years since settlement, communities comprising this 3,000 square mile region have grown and changed the environment of these natural resources, and these once abundant resources have diminished greatly. Now in the 21st Century, there is wide recognition that a coherent natural resource inventory is needed in the region. This natural resource inventory will be a wealth of information that can be used to plan for the future growth of our region and preserve valuable natural assets which benefit the people who live here.

This recognition is timely. The region's many streams are threatened by unmanaged growth and land use change, yet the many municipalities that cut across watersheds weaken unified action. Widespread changes in land use must be understood to fully address the challenge of habitat fragmentation and degradation. Developing effective policies to protect these natural resources requires knowing where, how abundant, and in what state of ecological health these resources are.

Recognizing these needs, Mid-America Regional Council (MARC) initiated the development of a regional map to depict the region's natural resources assets and ecological land features. MARC intends for this map and associated data to be used as a tool in conservation planning and ecological preservation by local governments and planning agencies throughout the Kansas City region. The ecological land cover map includes an extensive Geographic Information System (GIS) and associated database that is the primary basis of this tool for use in conservation planning.

This initiative is funded by the U.S. Environmental Protection Agency and managed by MARC. With its completion, MARC will begin to educate local planning agencies and government agencies the public in using the regional ecological land cover map and GIS data as the conservation planning process moves ahead. With this project, Kansas City joins other national leaders such as Chicago and Milwaukee in using conservation planning tools for environmental quality. Thanks to similar projects, these cities increasingly enjoy better air and water quality, reduced flood damage, ecosystem and biodiversity conservation, habitat and wildlife protection,



*Ecological Land Cover Map of the
Kansas City Metropolitan Area*

stream course stabilization, the creation of neighborhood and development amenities, better opportunities for outdoor recreation, and models of sustainable urban development.

To achieve these goals, MARC teamed with Applied Ecological Services, Inc. (AES) and Patti Banks & Associates (PBA), two Kansas City firms with expertise in conservation planning and ecological services. AES created a natural resources classification and inventory method, conducted field surveys, and developed descriptions of ecological land cover types in the Kansas City region. The AES classification and inventory method used previous work by state and federal agencies, or data gathered by MARC and the region's counties and cities. AES intended the classification and inventory to be understandable to lay people and amenable to future revisions and updates. During the field inventory, hundreds of locations were visited by staff of AES and PBA to assess the condition of and collect new information about the region's natural resources, and verify existing data about vegetative communities and their occurrences.

Results of the inventory found that **22 percent** of the metropolitan region retains areas of high quality vegetative communities with numerous native species that are worthy of conservation. These areas are limited in number and in their extent, but they present many opportunities for conservation of ecosystems, habitats, and other natural resources that will benefit the overall Kansas City region. Results of the inventory also revealed a tremendous need for ecological restoration work so that stream water quality and fish habitat can be improved, and that wildlife habitat in forests, savannas, and grasslands can again sustain high numbers of native species. When incorporated into conservation plans, woodlands, grasslands, and shrublands can result in better stormwater management, cleaner water, healthier riparian areas and reduced sediment loadings in streams and other water bodies. Native species are vital for providing habitat for maintaining healthy wildlife populations. These lands also improve the aesthetic character of the landscape, provide scenic views and open space, and provide for recreational activities for our communities.



The Kansas City region has several areas where natural resources are similar to those present 150 years ago, but they are rapidly being converted to non-native uses.

The urban areas in the Kansas City region continue to support large tracts of woodland and restorable savannas. Urban areas are included in this 22 percent of land area that retain high quality ecological conditions, and largely consist of mature deciduous forests, lowland hardwood forests in stream valleys and river bottoms, marshes and other wetlands, and the native grasslands and savannas that were the dominant natural features of the region 150 years ago. These natural resources are concentrated along rivers and streams, near open water, and on steeply-sloping land. The woodlands and restorable savannas in urban settings play important roles in providing recreational opportunities, serving existing and future parkland, creating buffers for streams, and increasing awareness of the region's environmental heritage.

Rural and semi-rural areas on both Kansas and Missouri present large tracts of both forest land and native prairie for conservation and/or restoration. The current data demonstrates numerous areas in Leavenworth and Johnson Counties in Kansas that have large tracts of natural vegetative communities that contain quality native vegetation and provide great environmental quality. Wyandotte County, Kansas, while largely developed for urban utilization, also contains several large tracts of deciduous forest. Platte, Ray, Clay, Jackson, and Cass Counties in Missouri exhibit extensive areas dominated by land used for agriculture and/or urban development, however, the original classification of the data from the United States Geological Service (USGS) Gap Analysis Program (GAP), because it was collected several years ago, may not reflect many areas and tracts that contain native vegetation that provide opportunities for conservation.

The results of the natural resources inventory and development of an ecological cover map for the Kansas City region provide the tools that will catalyze the next phase of MARC's initiative to address conservation and planning needs in the Kansas City region. Conservation and planning not only ensure that plant and animal species continue to thrive in their native habitats, they are vital to the future success of the region's communities. A focus on natural resource conservation and restoration benefits a resident's quality of life by preserving natural breaks in development for nearby recreation and relaxation; by maintaining and raising land values; by improving stormwater management and reducing flood risk; and by enhancing environmental quality. Along the way, conservation and planning will maintain or improve the stream flow and water quality, wildlife habitat and populations, and the rich diversity of life forms in the region. If successful, conservation planning for sustaining our natural resources will bequeath the heritage of the region's natural ecosystems and its many benefits to the future generations in the Kansas City metropolitan area.

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