

Forestry Infomart Fall 2003 Update

Partners and Progress on Projects

The Missouri Resource Assessment Partnership (MoRAP) is an interagency partnership at the University of Missouri that provides expertise in geographic information systems (GIS), remote sensing, and natural resource management. The following state and federal agencies have partnered to make MoRAP possible.

PARTNERS



Mark Twain National Forest



American Bird Conservancy



James River Basin Partnership



Columbia Environmental Research Center



Mid-Continent Mapping Center



Natural Resources Conservation Service



Environmental Protection Agency



National Park Service and Ozark National Scenic Riverways



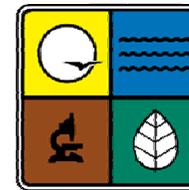
World Wildlife Fund



Missouri Department Of Conservation



United States Fish and Wildlife Service



Missouri Department of Natural Resources



Missouri Department Of Transportation



Missouri National Guard

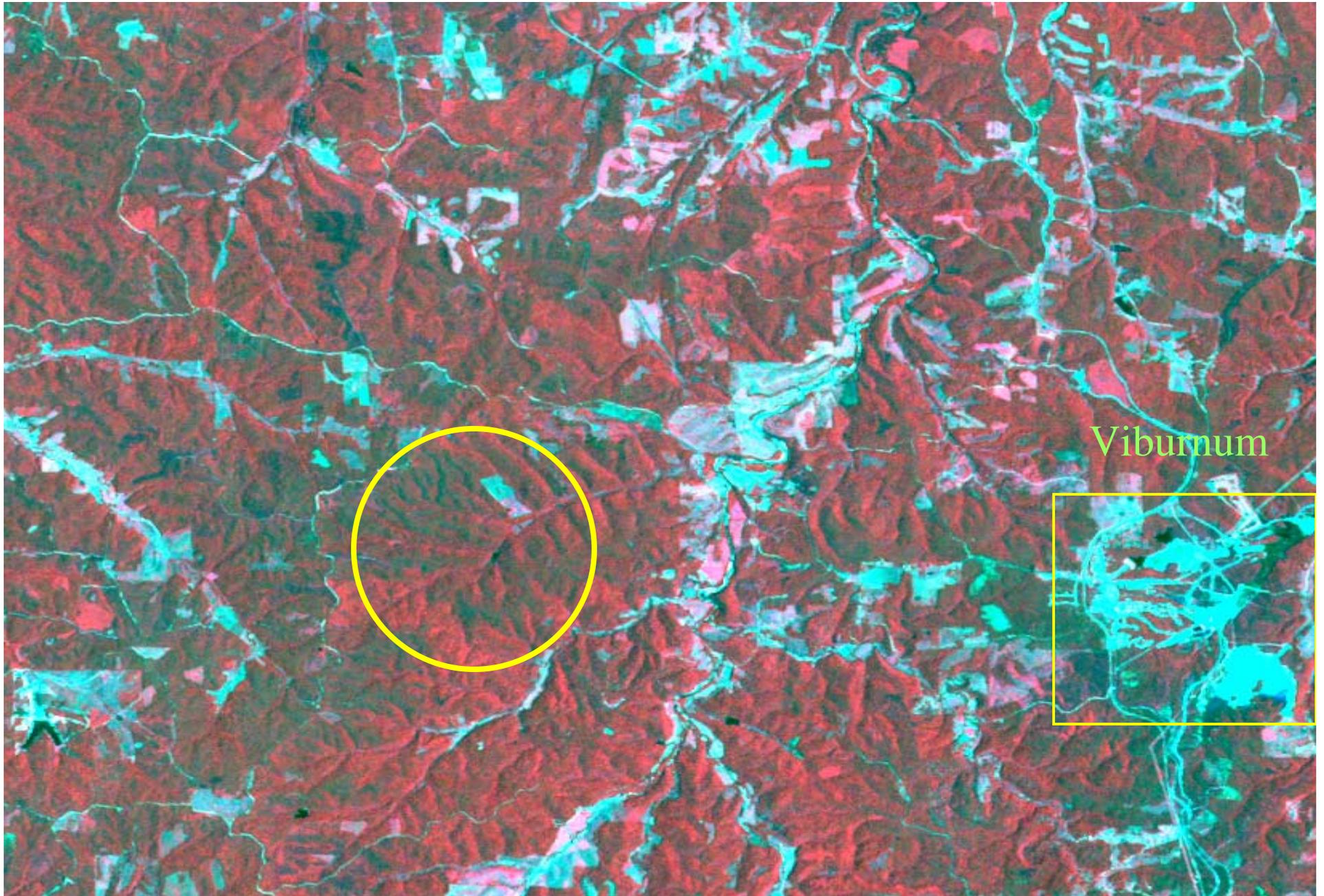


University of Missouri and Missouri Cooperative Fish and Wildlife Research Unit

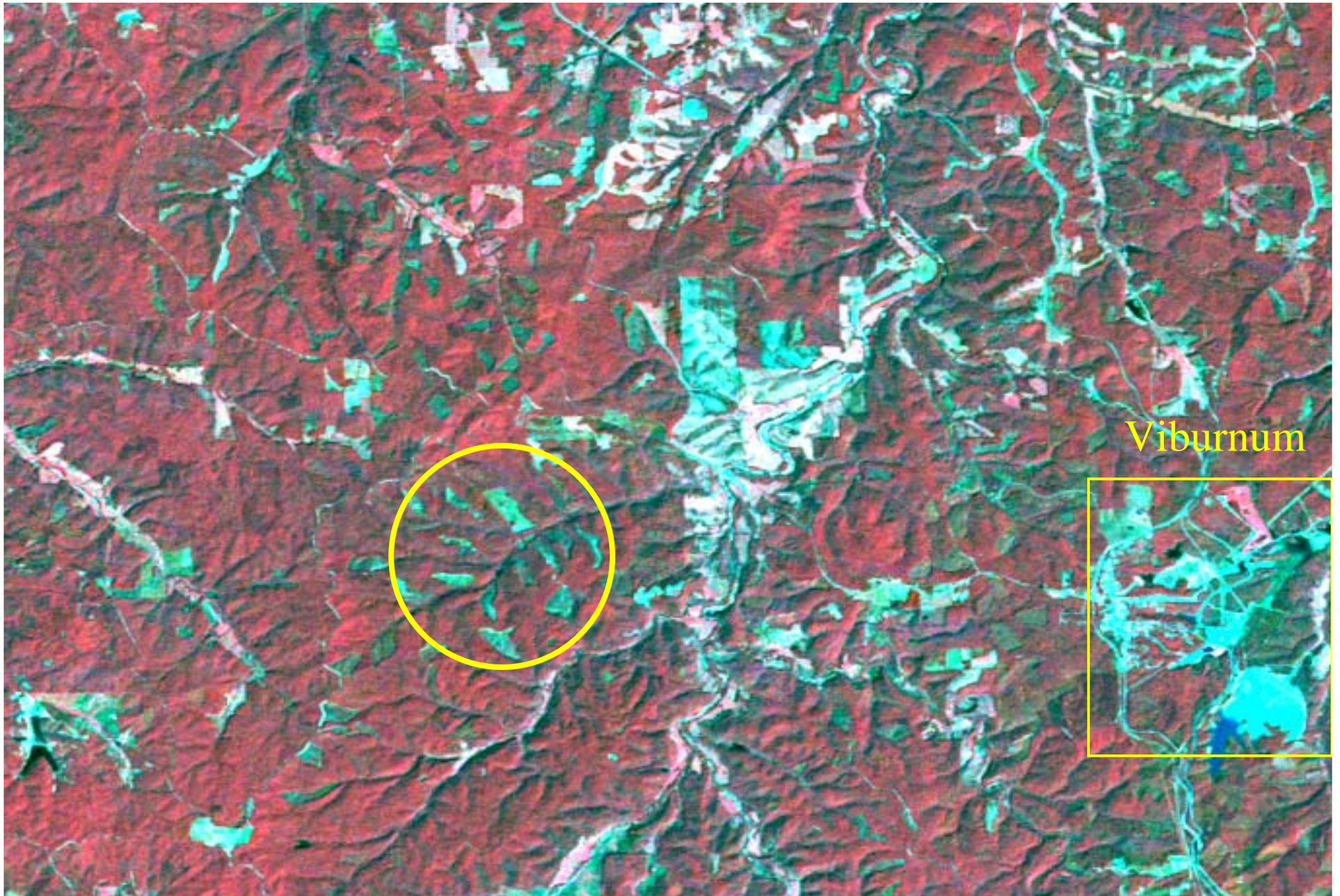
Ozark Forest Change Detection for USFS and MDC

- **Goal:** To identify easy and inexpensive techniques that detect subtle changes in forest health within the Missouri Ozark Forests using RS input data.

Landsat TM 1986 - Bands 4, 3, 2 = Red, Green, Blue

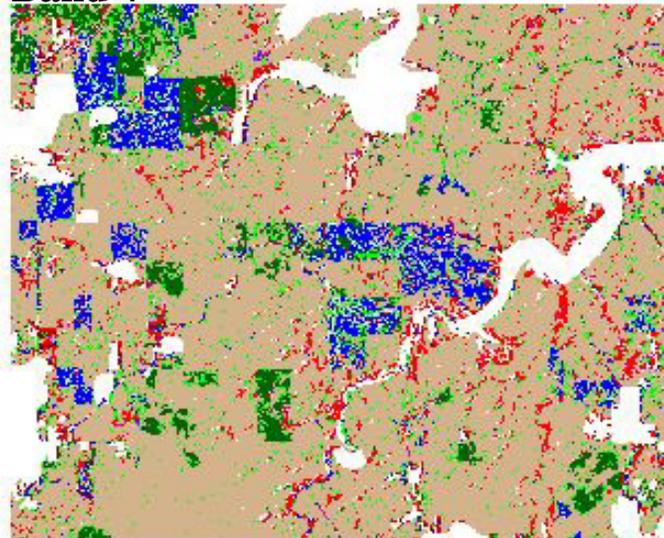


Landsat TM 1992 - Bands 4, 3, 2 = Red, Green, Blue

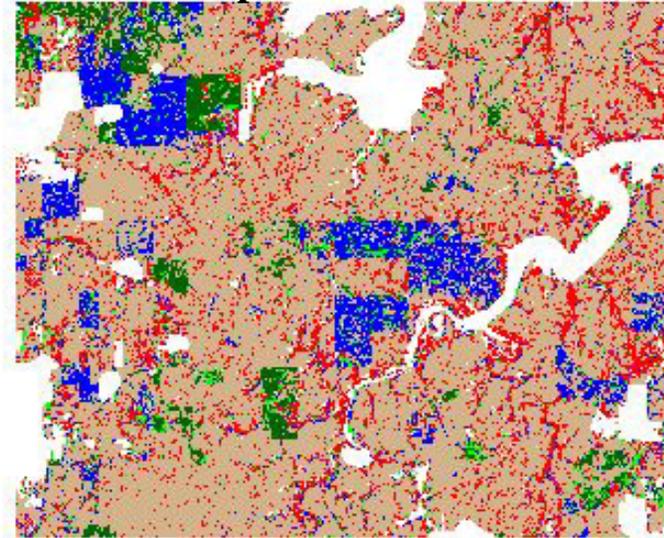


- Classified Images

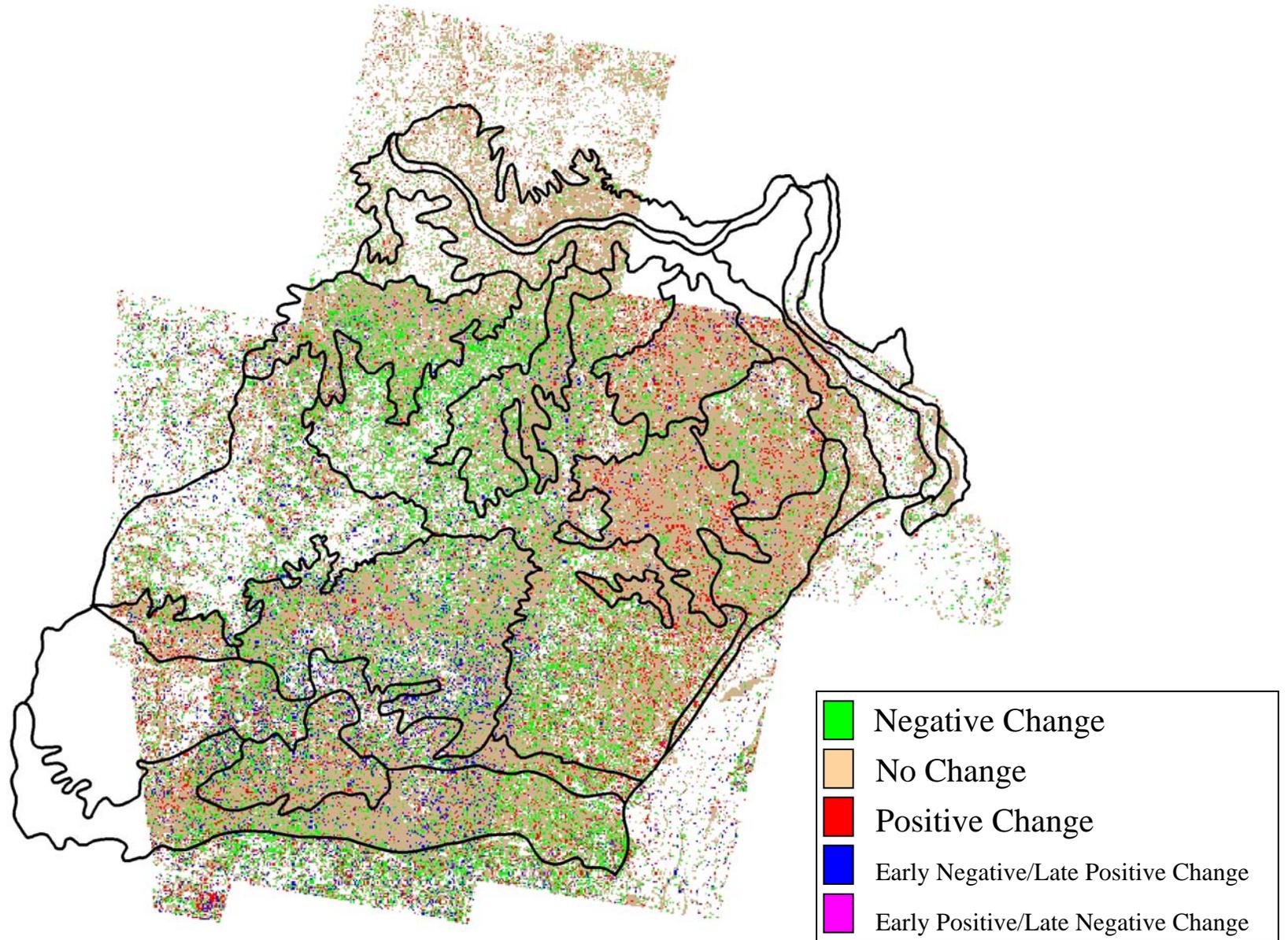
Band 7



Tasseled Cap



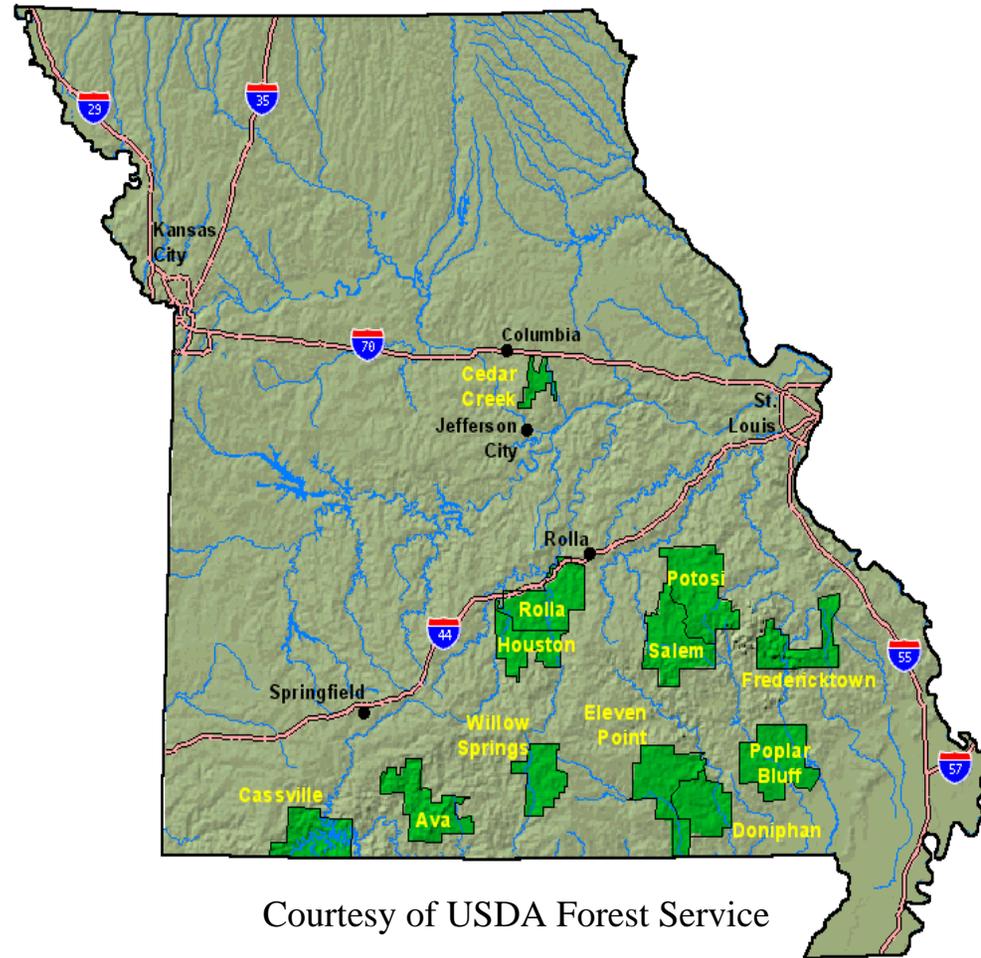
Missouri Ozarks –Preliminary Results



Forest Productivity Modeling of the Mark Twain National Forest

- Utilize the BGC++ (Biogeochemical Cycle) ecosystem process model to simulate the total Net Primary Production (NPP), total Above Ground NPP (ANPP), and total allocation to stems (stem increment) of MTNF forest stands.
- Calibrate MODIS above ground NPP estimates using the BGC++ data

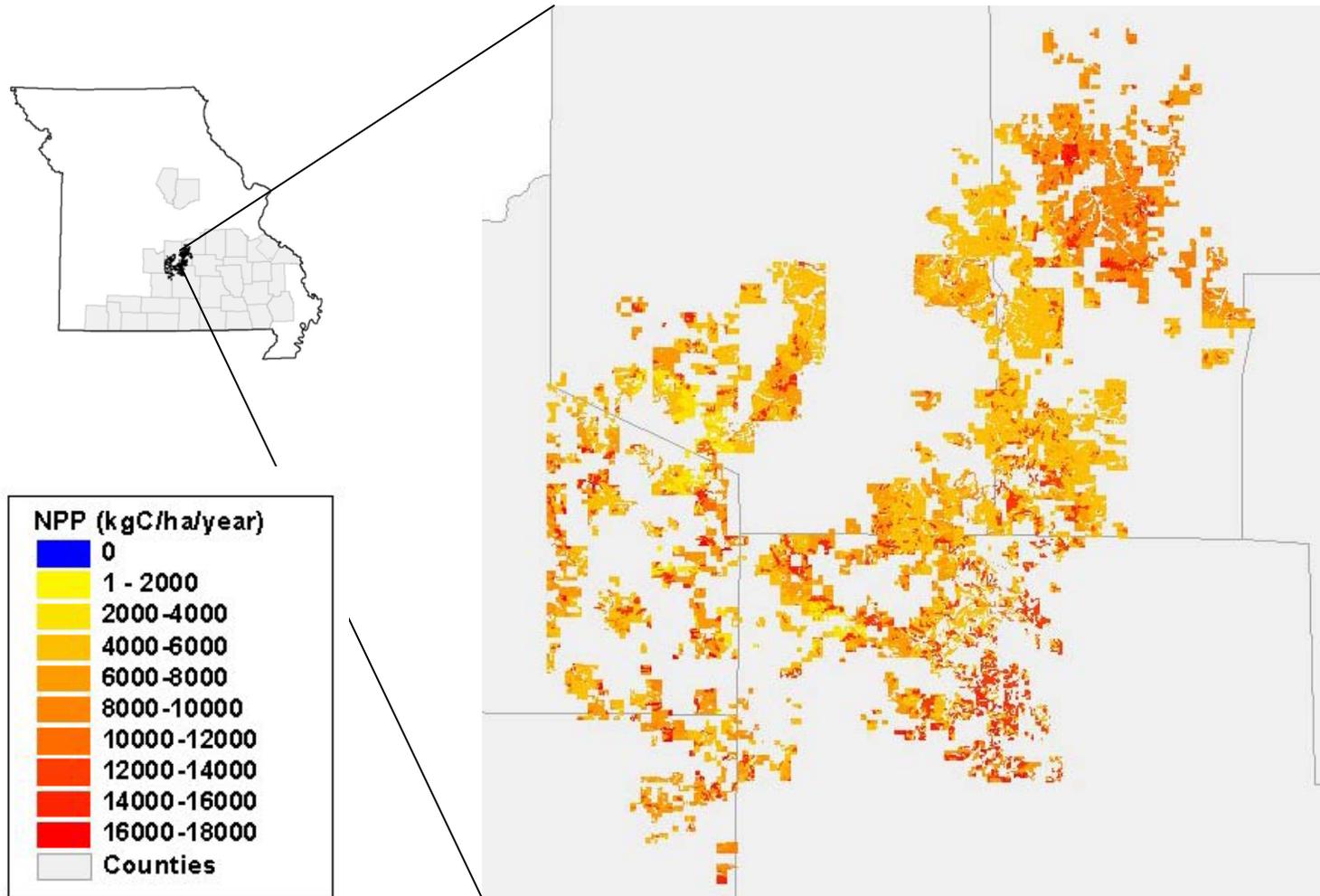
Study Area: Mark Twain National Forest



Courtesy of USDA Forest Service

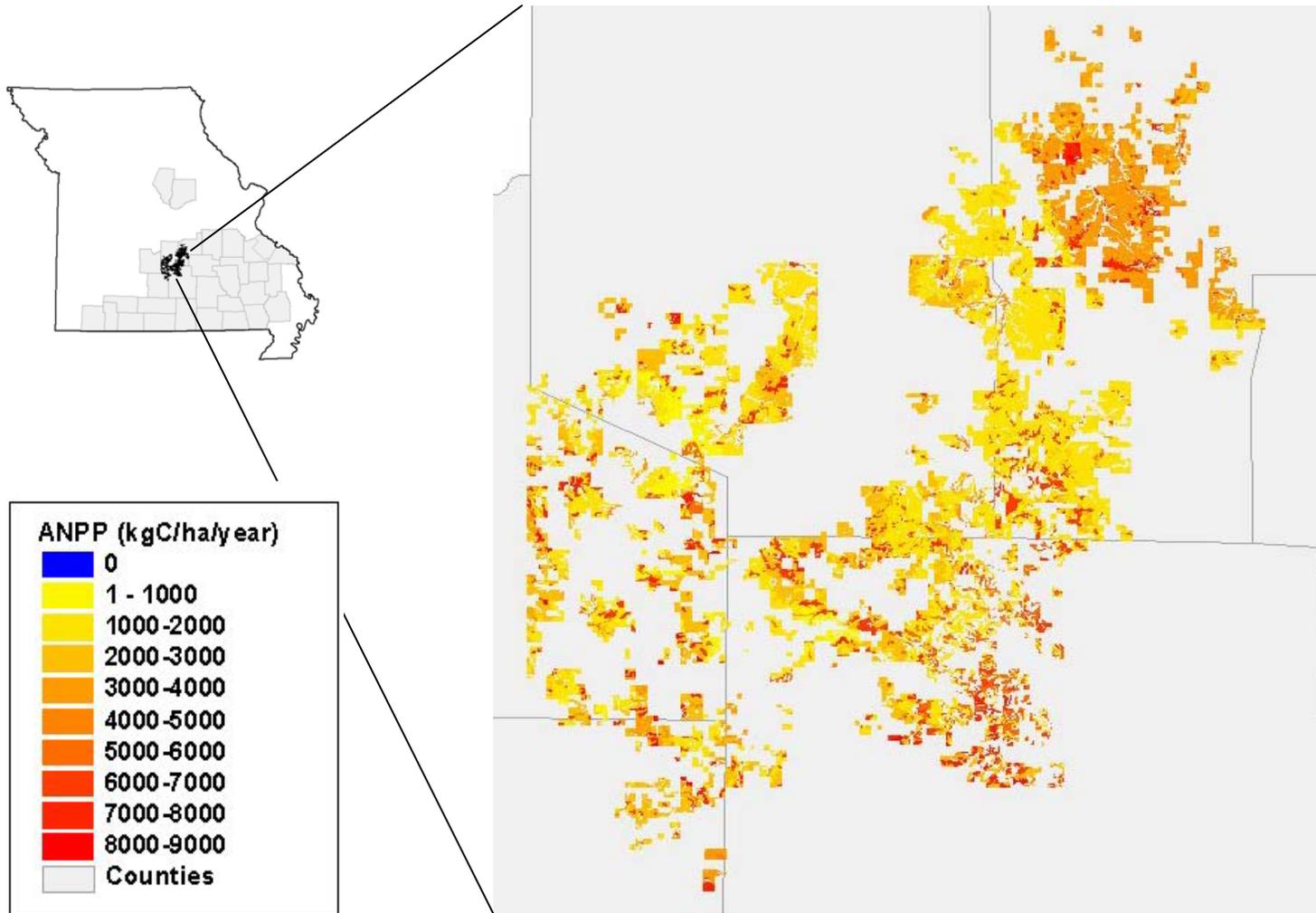
BGC++ Output: **Total NPP**

MTNF – Rolla and Houston Districts



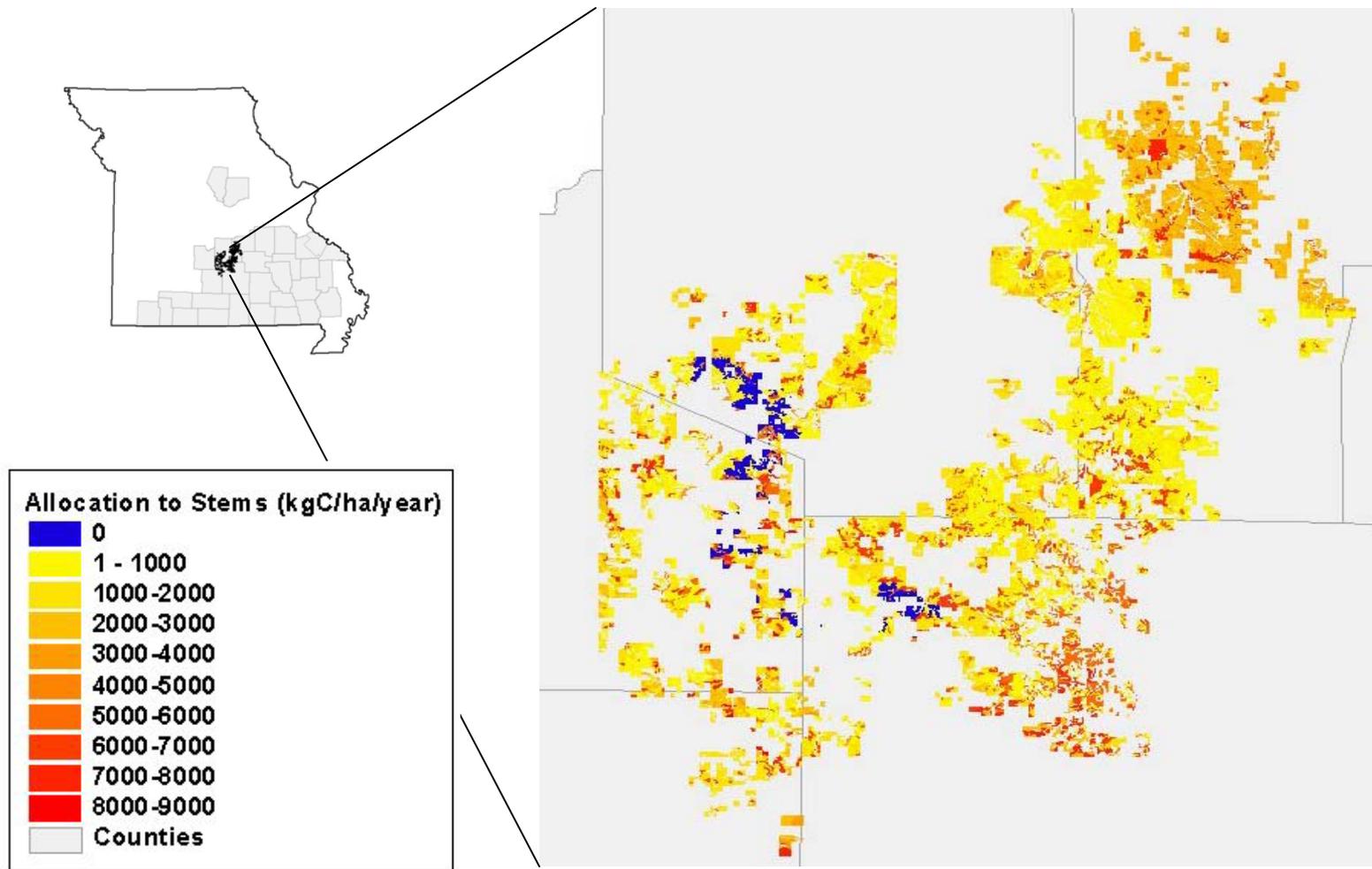
BGC++ Output: **Total ANPP**

MTNF – Rolla and Houston Districts



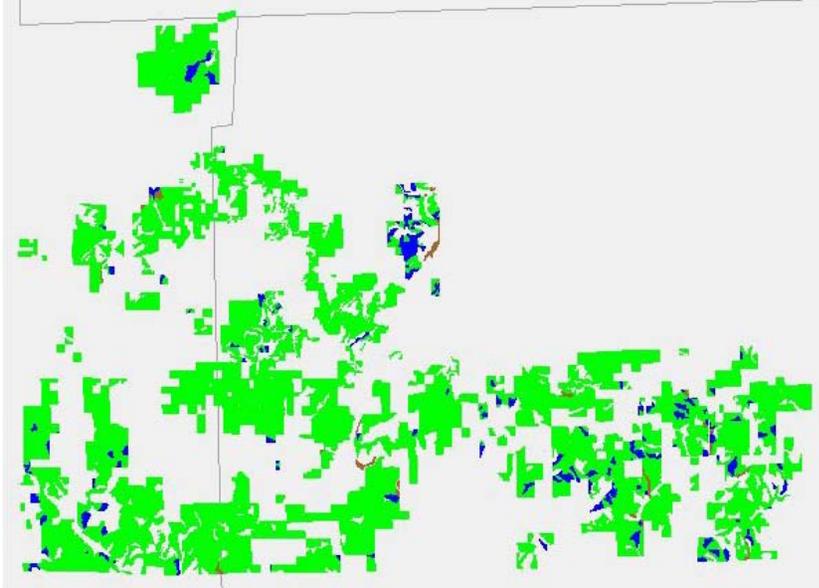
BGC++ Output: Total Allocation to Stems

MTNF – Rolla and Houston Districts

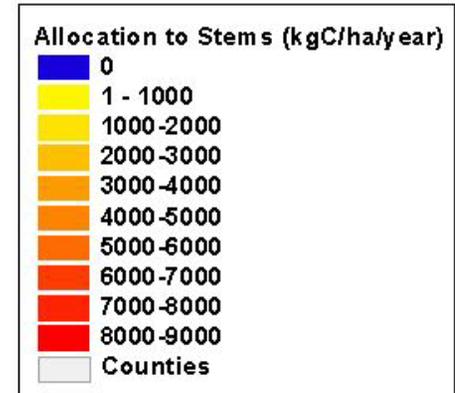
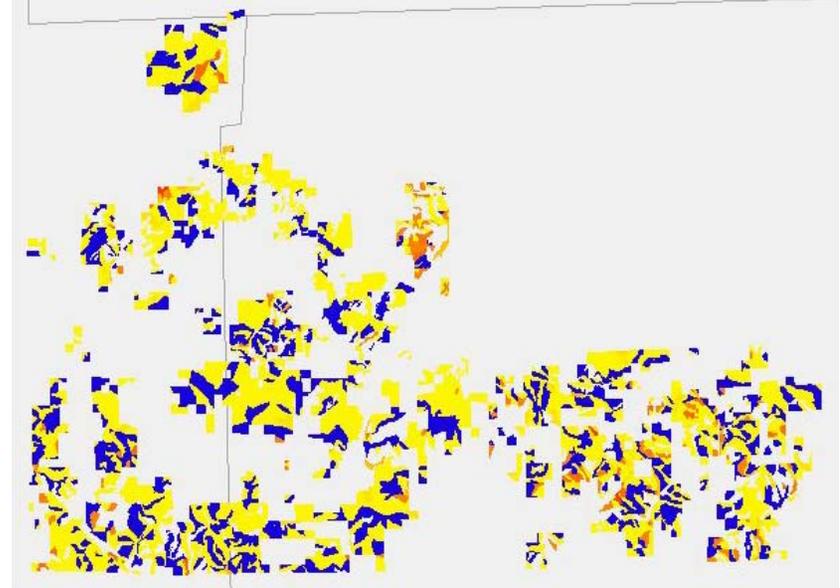


BGC++ Output: Biome and Total Allocation to Stems MTNF – Fredricktown District

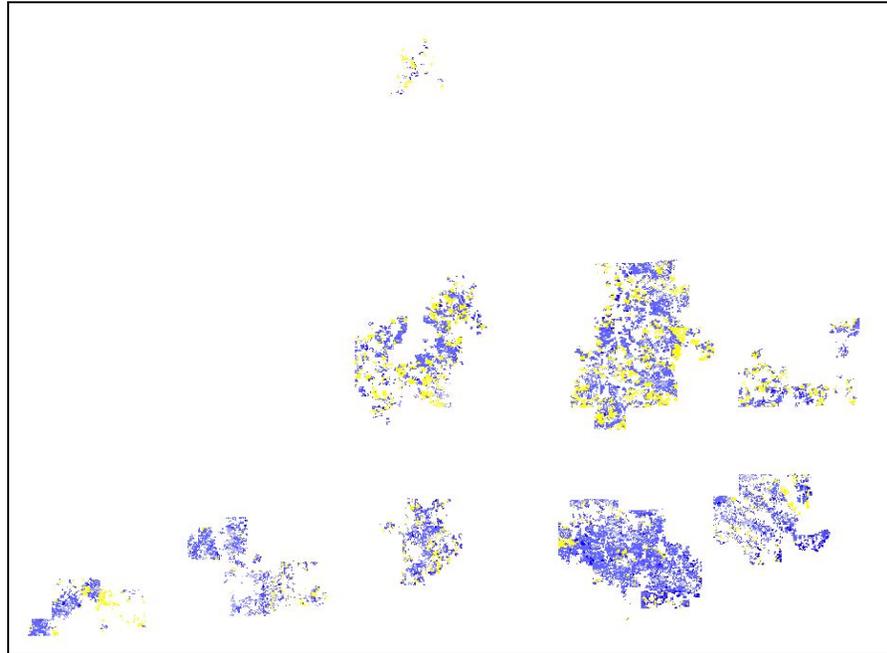
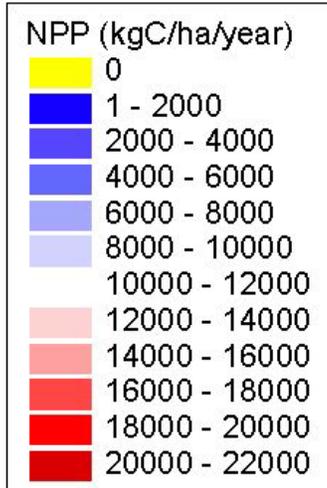
Biome



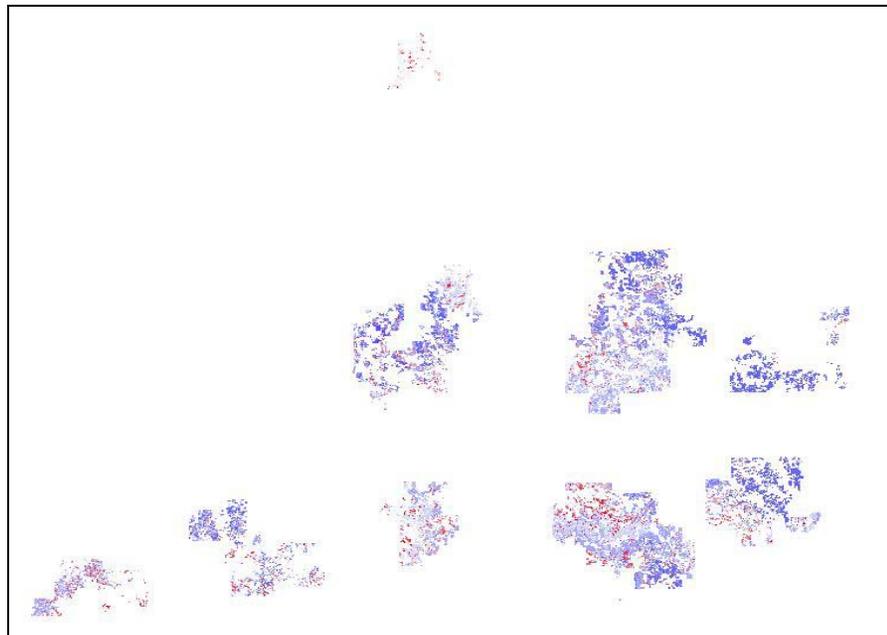
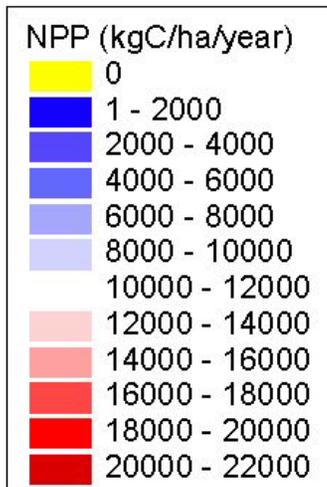
Total Allocation to Stems



MODIS NPP



BGC++ NPP



Towards an updated Landcover data layer



Raytheon



 **NRCS** Natural Resources
Conservation Service

Landcover Update

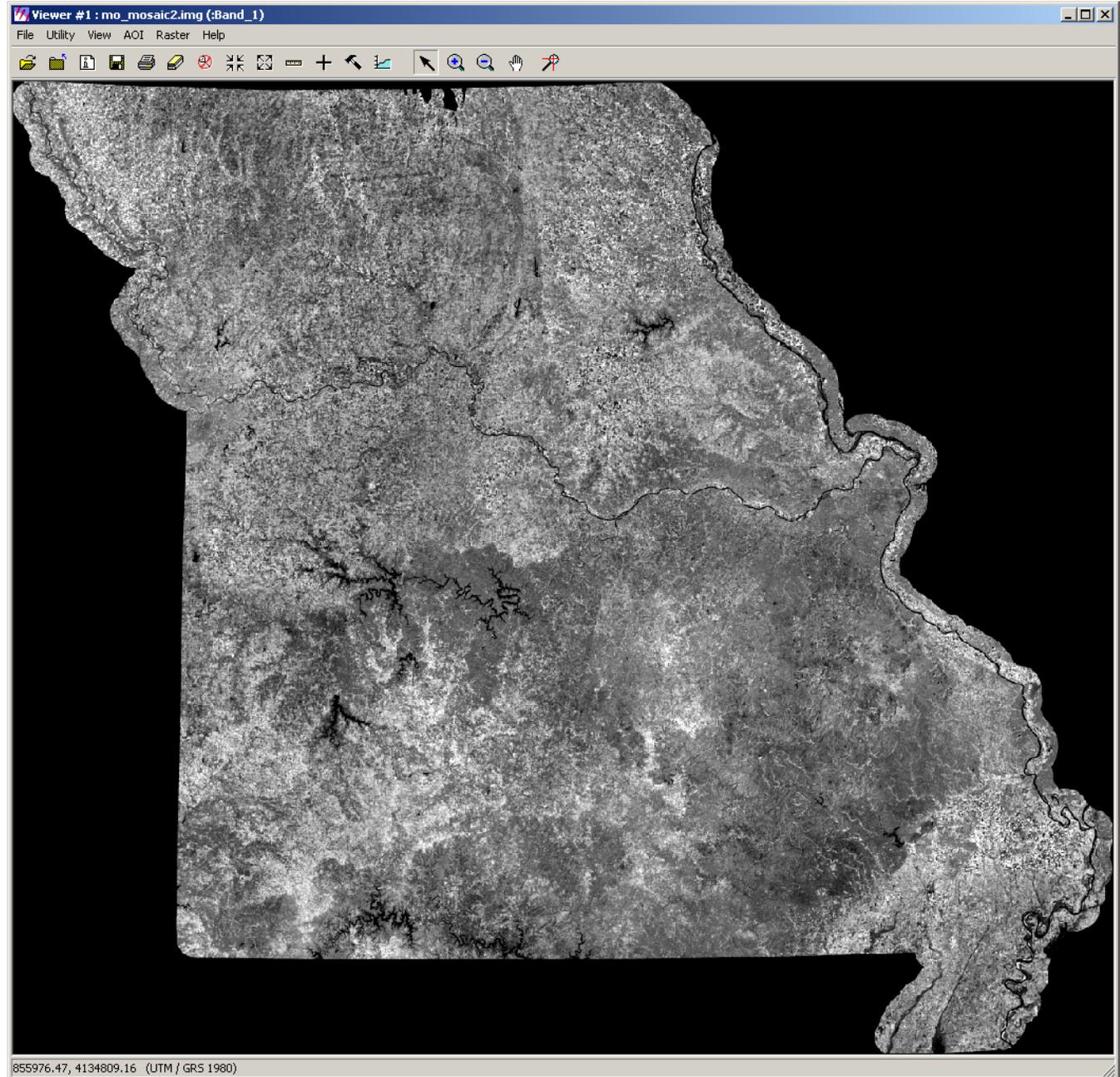
- Classification based on current Landsat 7 imagery
- Classification based on satellite triplicates collected during the growing season months (spring, summer, fall), all data channels used
- Scene-based clustering with data reduction to reduce scene overlap
- Unsupervised classification decision rule

Landcover Classes

- Impervious
- High Intensity Urban
- Low Intensity Urban
- Barren or Sparsely Vegetated (Areas in Transition)
- Cropland
- Grassland
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Deciduous Woody/Herbaceous
- Evergreen Woody/Herbaceous
- Mixed Woody/Herbaceous
- Woody-Dominated Wetland
- Herbaceous-Dominated Wetland
- Open Water

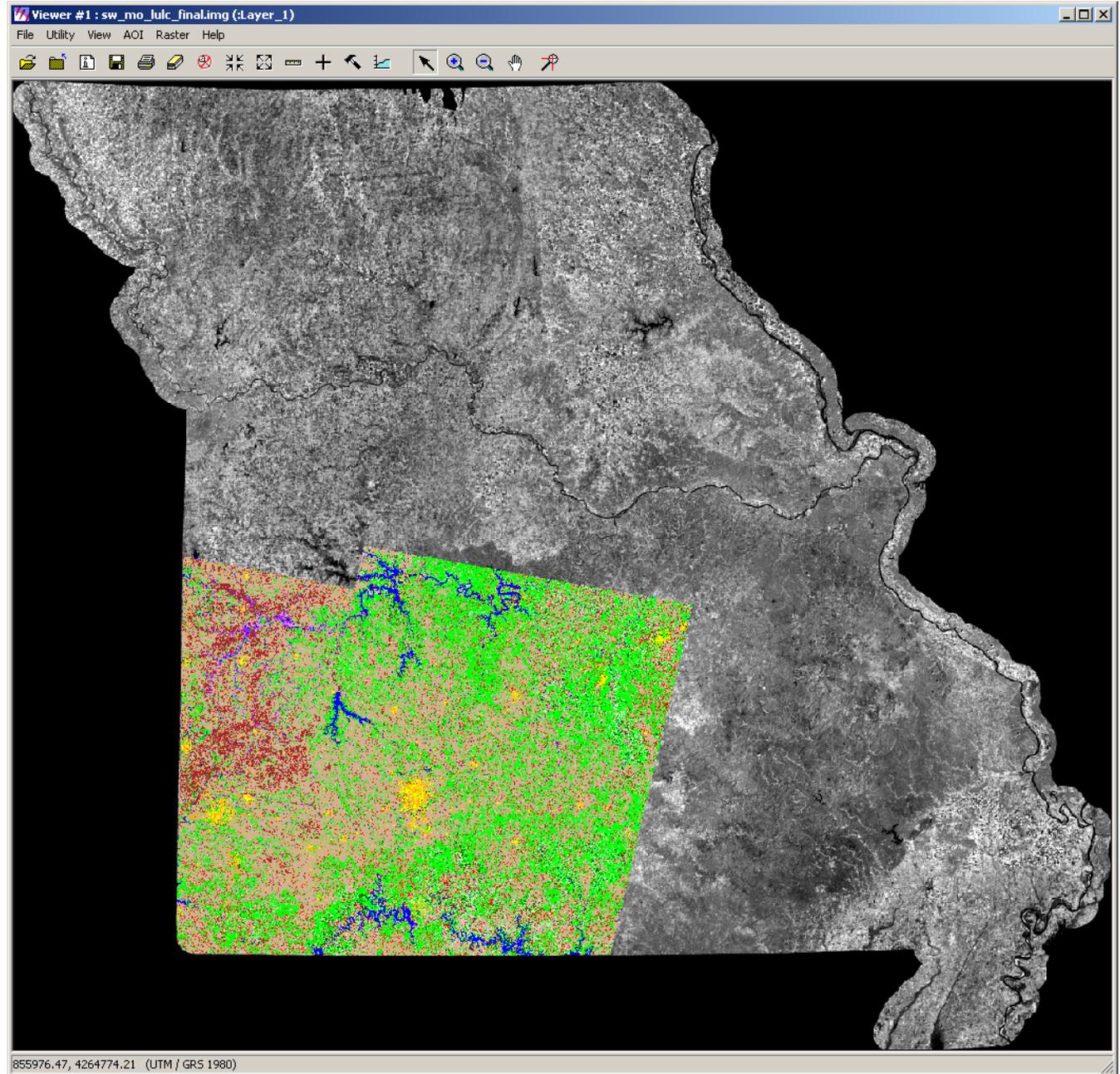
15m Pan Mosaic

- Based on Landsat 7 pan imagery
- Fall date
- Referenced to DOQQ's



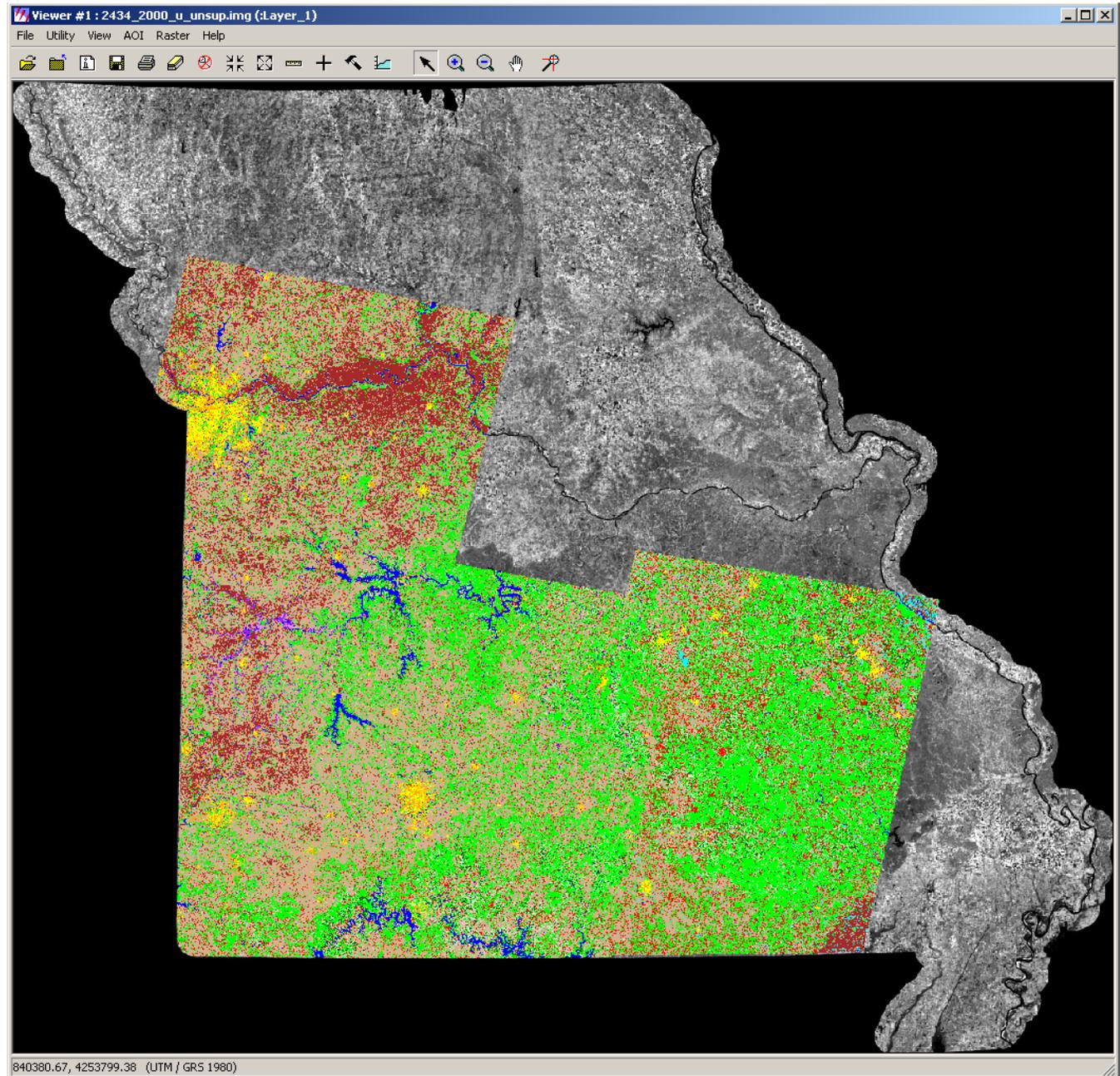
LULC Update

- Southwest Missouri
- Review pending



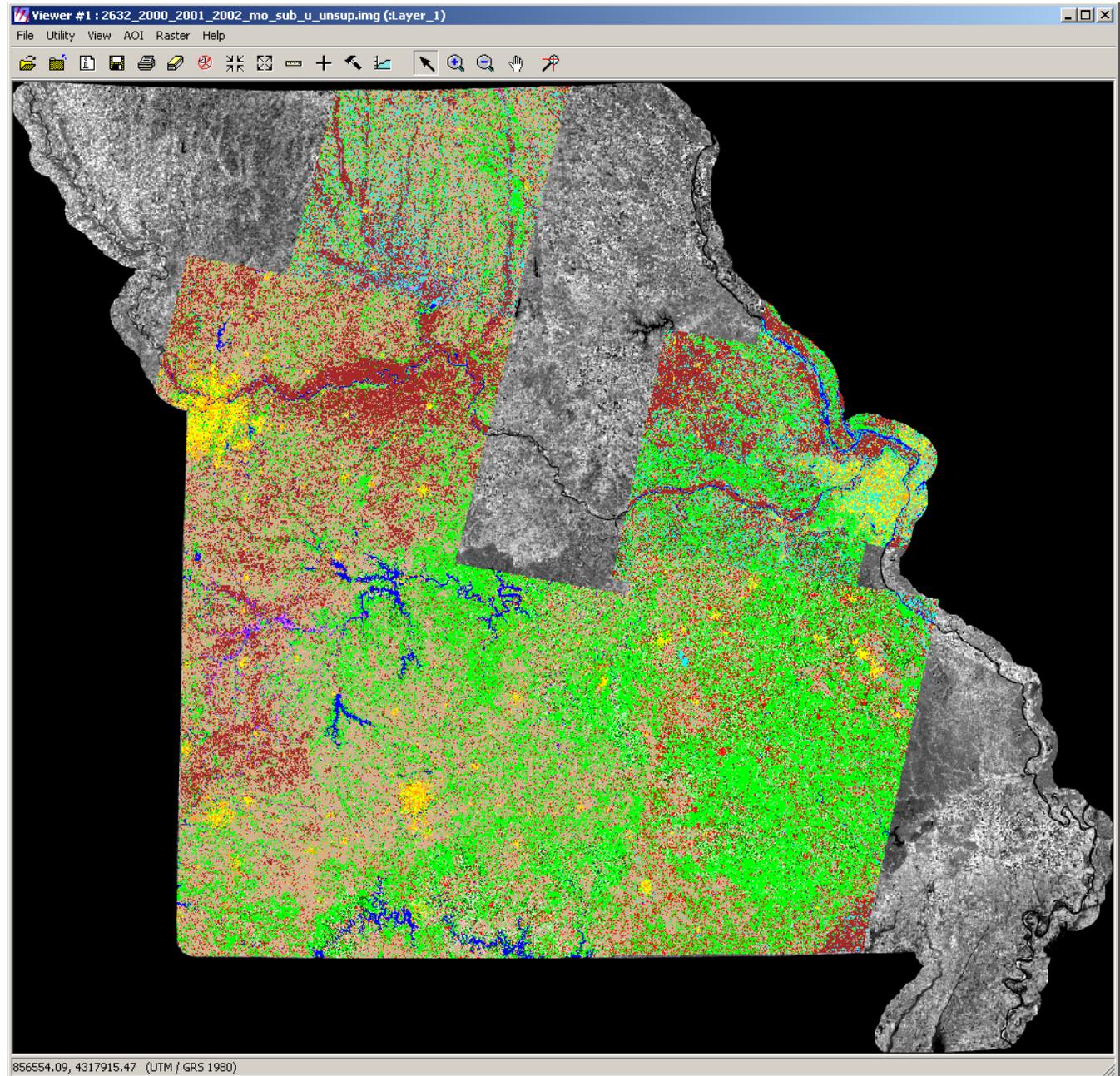
LULC Update

- Kansas City and Eastern Ozarks
- Currently cluster busting
- Modeling pending



LULC Update

- St. Louis and North central Missouri
- Currently assigning classes
- Cluster busting pending



LULC Update

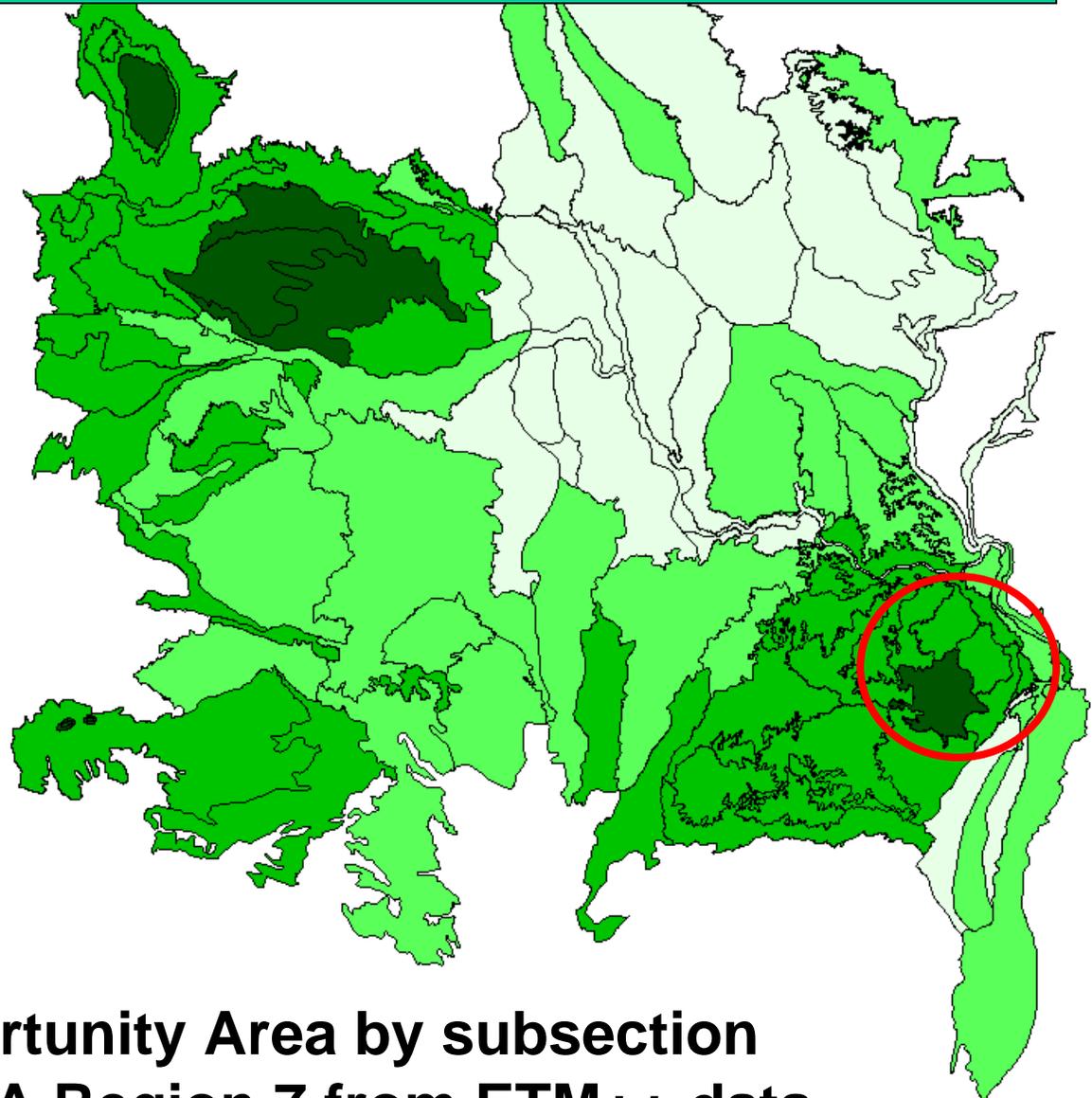
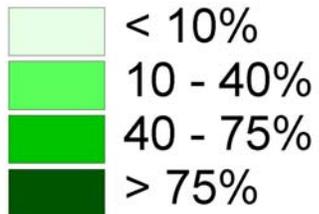
- An instrument malfunction occurred onboard Landsat 7 on May 31, 2003. The problem was caused by failure of the Scan Line Corrector (SLC), which compensates for the forward motion of the satellite. Subsequent efforts to recover the SLC have not been successful, and the problem appears to be permanent. The Landsat 7 ETM+ is still capable of acquiring useful image data with the SLC turned off, particularly within the central portion of any given scene. Landsat 7 ETM+ will therefore continue to acquire image data in the “SLC-off” mode.

LULC Update

- The USGS EDC is currently upgrading the necessary systems to process and distribute SLC-off products to users, with a target release date of November 2003.
- Pending the SLC-off product release, all Landsat 7 scenes that were acquired since May 31, 2003 (approximately 21:45 GMT) cannot be searched or ordered via any of the Landsat 7 search and order interfaces.

Critical Ecosystems Assessment: SE Ozark Pilot for EPA Region 7

% of subsection with OAs

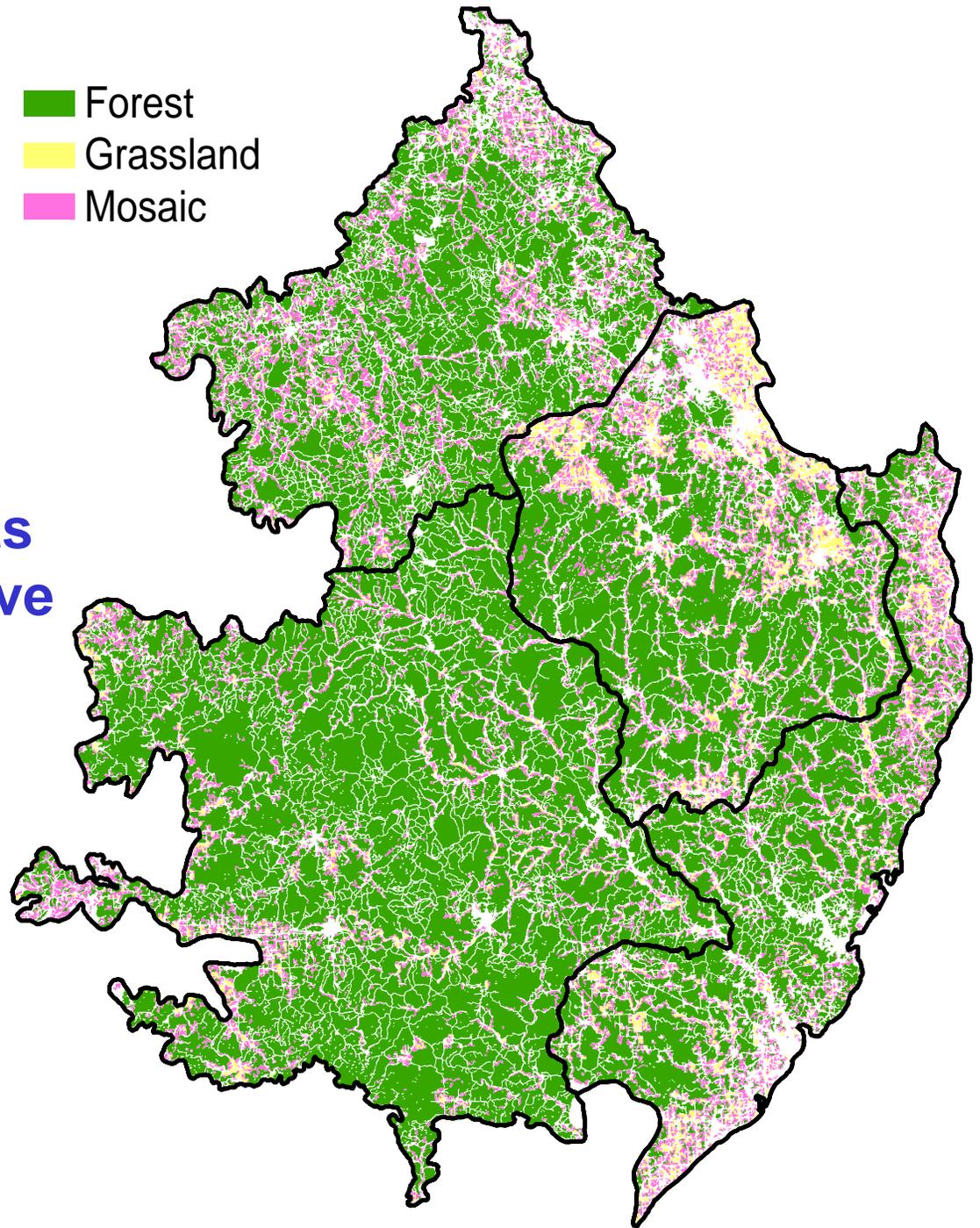


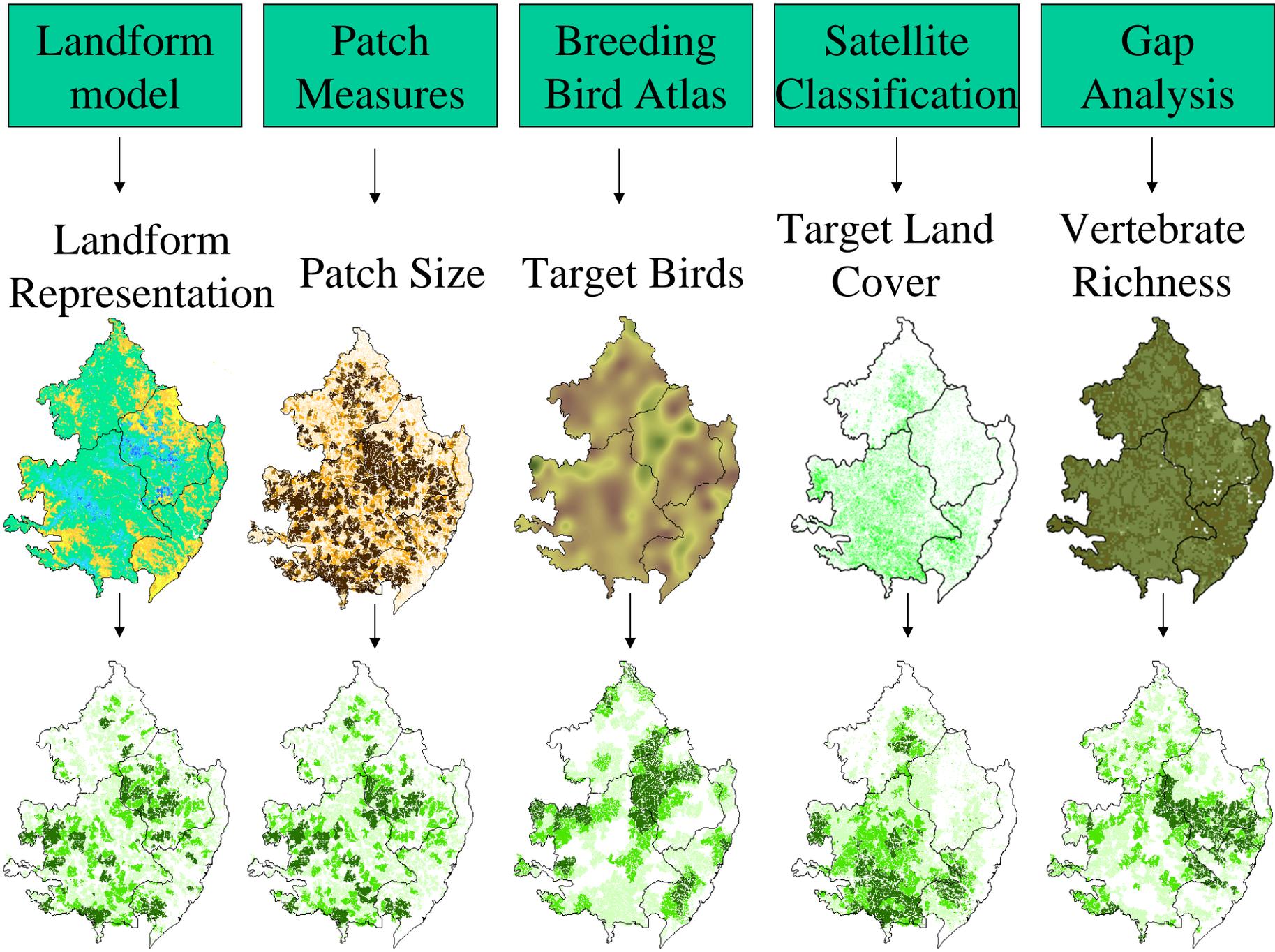
**Percent of total Opportunity Area by subsection
(liberal model) for EPA Region 7 from ETM++ data**

Opportunity Areas (Liberal Selection Model for SE Missouri Ozarks)



analyze impact of targets
by ranking OAs using five
different conservation
targets and evaluating
overlap in perceived
priorities





Number of Conservation Targets Represented within Each OA (50% of Study Area Selected Using 5 Targets)

Percent of Study Area
In top 50% Selected By:

- 1 Target: 22.2%
- 2 Targets: 13.6%
- 3 Targets: 12.6%
- 4 Targets: 7.9%
- 5 Targets: 1.6%

