

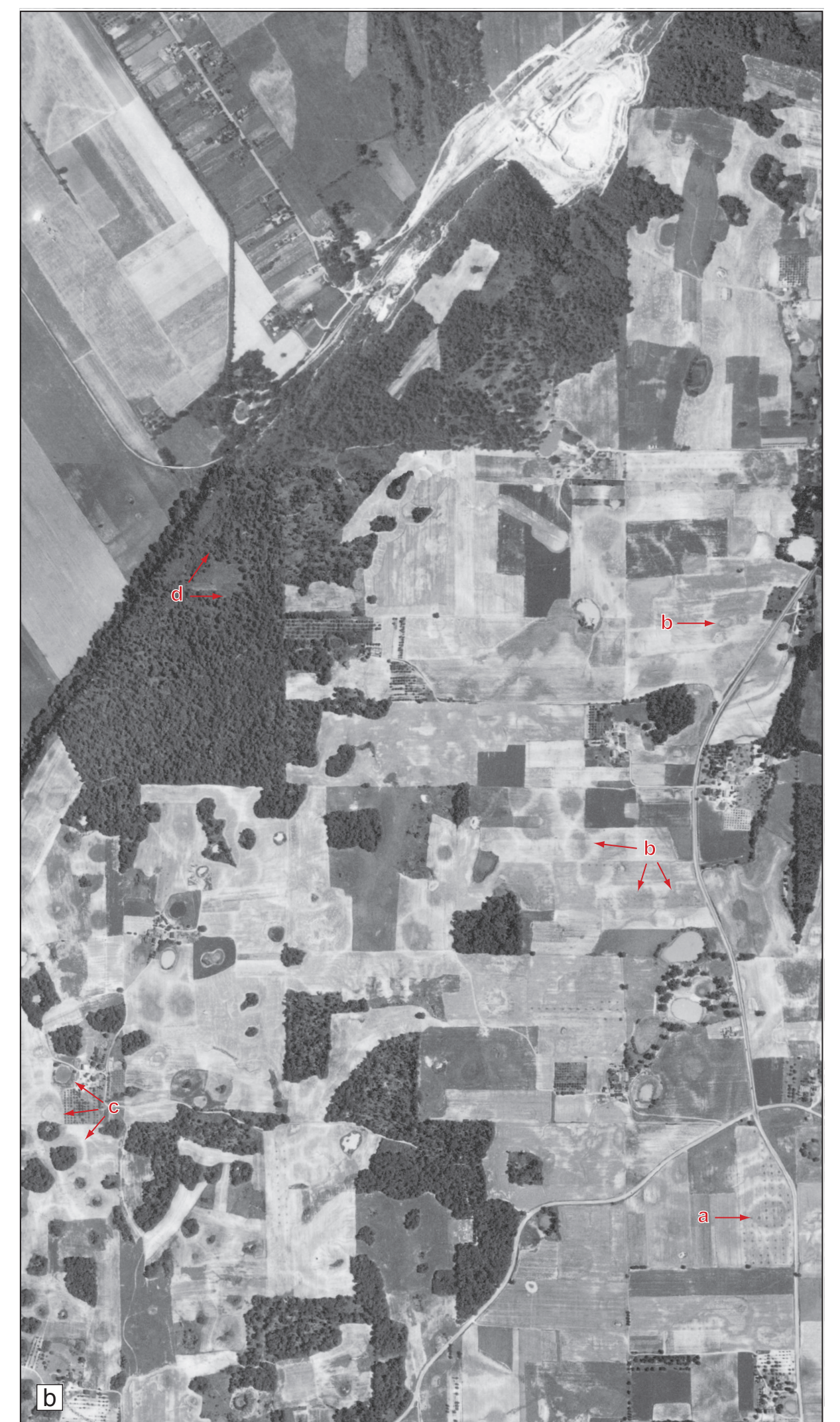
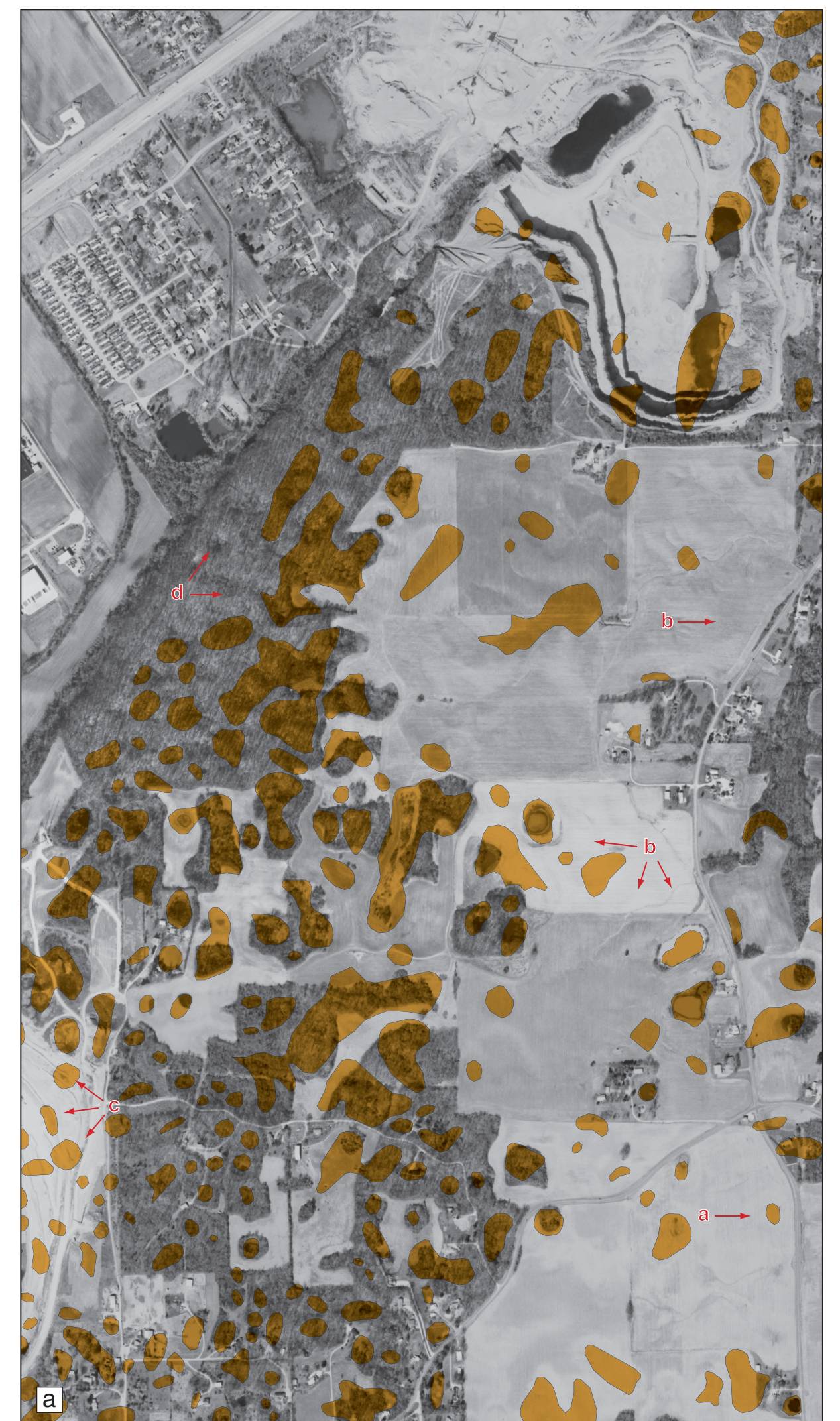
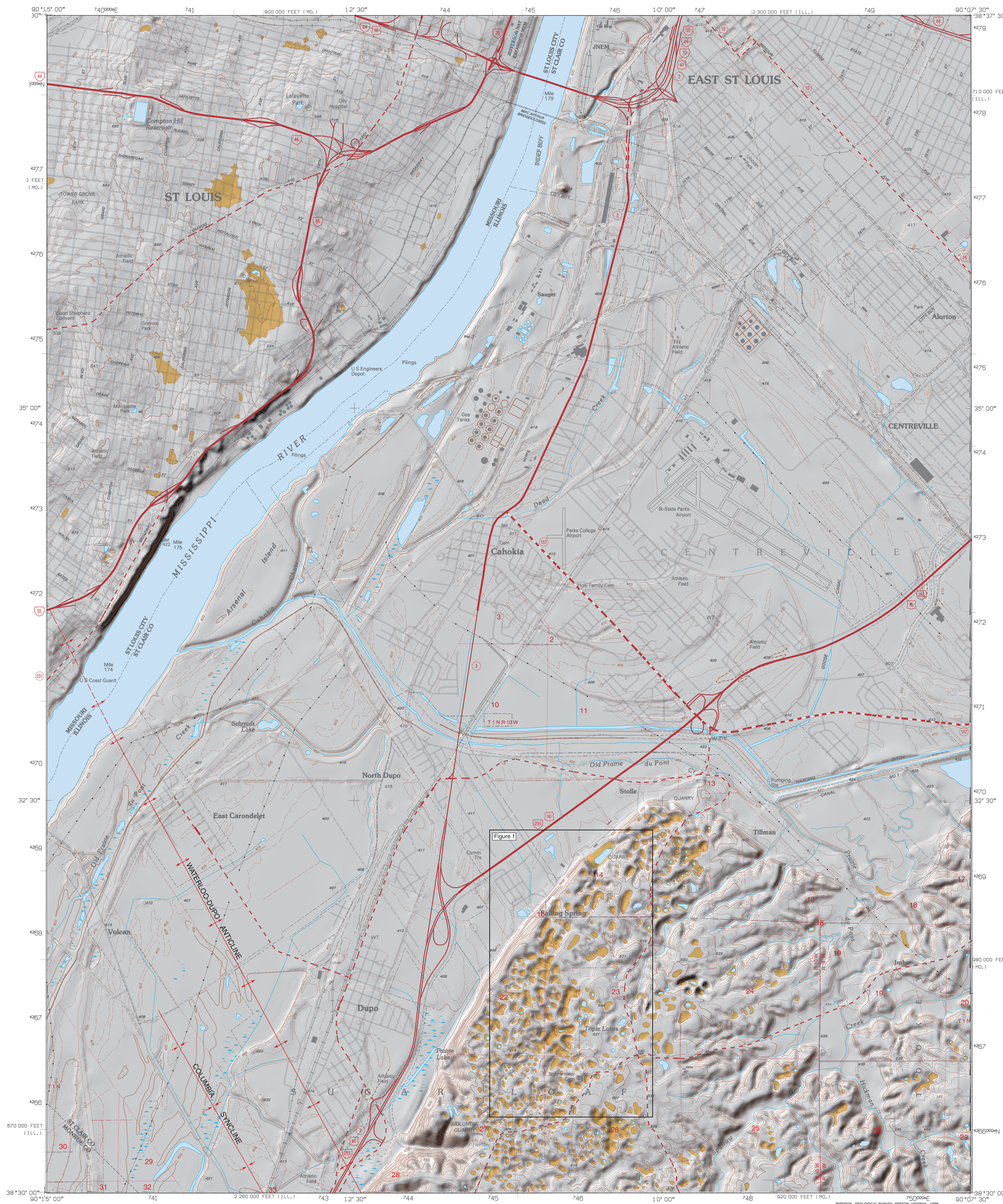
# SINKHOLE DENSITY AND DISTRIBUTION OF CAHOKIA QUADRANGLE

## ST. CLAIR COUNTY, ILLINOIS

Institute of Natural Resource Sustainability  
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Illinois Geologic Quadrangle Map  
IGQ Cahokia-SD

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2009



**Figure 1** Vertical aerial photographs of a particularly karstified section of the Cahokia Quadrangle, taken 65 years apart, show how agricultural practices and quarrying activities have changed the physical landscape. Figure 1a is derived from a U.S. Geological Survey (USGS 2005) Digital Orthophoto Quarter Quadrangle (DOQQ) produced from aerial photography acquired on March 3, 2005. Figure 1b is the same geographical area shown on a digitized U.S. Department of Agriculture, Agricultural Adjustment Administration (USDA-AAA 1940) aerial photograph acquired July 13, 1940. Comparison of the two aerial photographs against the USGS topographic base map for the quadrangle shows that the base map does not identify all sinkholes. The sinkhole overlay portrays closed depressions identified from the topographic base map. The 10-foot contour interval is too coarse to depict the much shallower sinkholes that are visible on the aerial photographs. The sinkholes in the 1940 aerial photograph are generally highlighted by concentric dark and light circular features owing to their deeper, wetter centers and shallower, more well-drained rims (area a). Some very visible sinkholes on the 1940 aerial photograph (area b), have largely been erased on the 2005 aerial photograph, due to remediation using stand pipes and fill to increase usable cropland area. After decades of using modern, large-scale farming equipment and the widespread adoption of conservation tillage methods beginning in the 1980s, many sinkholes are now indistinguishable on the 2005 aerial photograph. Other sinkholes have been totally removed during quarrying operations (area c). It is interesting to note that because of the early, leaf-off acquisition date of the 2005 aerial photograph, sinkholes can be discriminated within many of the densely wooded areas (fig. 1b, area d) that are completely masked by the tree canopy on the summer 1940 aerial photograph. Scale 1:12,000.

Base map compiled by Illinois State Geological Survey from digital data (Digital Line Graphs) provided by the United States Geological Survey. Topography compiled 1952. Planimetry derived from imagery taken 1993. PLS and survey control current as of 1954. Contours that conflict with revised planimetry are dashed.

North American Datum of 1983 (NAD 83)  
Projection: Transverse Mercator  
10,000-foot ticks: Illinois (west zone) and Missouri (east zone) State Plane Coordinate systems (Transverse Mercator)  
1,000-meter ticks: Universal Transverse Mercator grid system, zone 15

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Geology based on field work by Samuel V. Panno, 2000.

Digital cartography by Jane E.J. Domier and Alexander J. Beata, Illinois State Geological Survey.

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### Symbols

- Sinkhole areas
- Anticline
- Syncline

### ROAD CLASSIFICATION

- Primary highway, hard surface
- Secondary highway, hard surface
- Light-duty road, hard or improved surface
- Unimproved road
- Interstate Route
- U.S. Route
- State Route

**ILLINOIS**  
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

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| 1 | 2 | 3 | ADJOINING QUADRANGLES |
|---|---|---|-----------------------|
| 1 | 2 | 3 | 1 Clayton, Missouri   |
| 4 | 5 | 6 | 2 Granite City        |
| 7 | 8 | 9 | 3 Monks Mound         |
|   |   |   | 4 Webster Groves      |
|   |   |   | 5 French Village      |
|   |   |   | 6 Oakville            |
|   |   |   | 7 Columbia            |
|   |   |   | 8 Millstadt           |

APPROXIMATE MEAN DECLINATION, 2009