Prairie Research Institute
ILLINOIS STATE GEOLOGICAL SURVEY

IMAGE MAP OF FOX LAKE QUADRANGLE
MCHENRY AND LAKE COUNTIES, ILLINOIS AND KENOSHA COUNTY, WISCONSIN

Illinois Geologic Quadrangle Map
IGQ Fox Lake-IM

Donald E. Luman
2013

Base map compiled by Illinois State Geological Survey from digital data (Raster Feature Separates) provided by the United States Geological Survey. Topography compiled from aerial photographs taken 1958. Field checked 1960. Revised from aerial photographs taken 1988. Field checked 1992. Base map edited 1993.

North American Datum of 1927 (NAD 27)
Projection: Transverse Mercator
10,000-foot ticks: Illinois State Plane Coordinate System, east zone and Wisconsin State Plane Coordinate System, south zone (Transverse Mercator)
1,000-meter ticks: Universal Transverse Mercator grid system, zone 16

Recommended citation:
Luman, D.E., 2013, Image Map of Fox Lake Quadrangle, McHenry and Lake Counties, Illinois, and Kenosha County, Wisconsin: Illinois State Geological Survey, Illinois Geologic Quadrangle Map, IGQ Fox Lake-IM, 1:24,000.

SCALE 1:24,000
1 1/2 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

BASE MAP CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Digital cartography by Jane E. Johnshoy Domier and Jennifer E. Carrell, Illinois State Geological Survey.

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1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Genoa City
2 Silver Lake
3 Paddock Lake
4 Richmond
5 Antioch
6 McHenry
7 Wauconda
8 Grayslake

?°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 2012

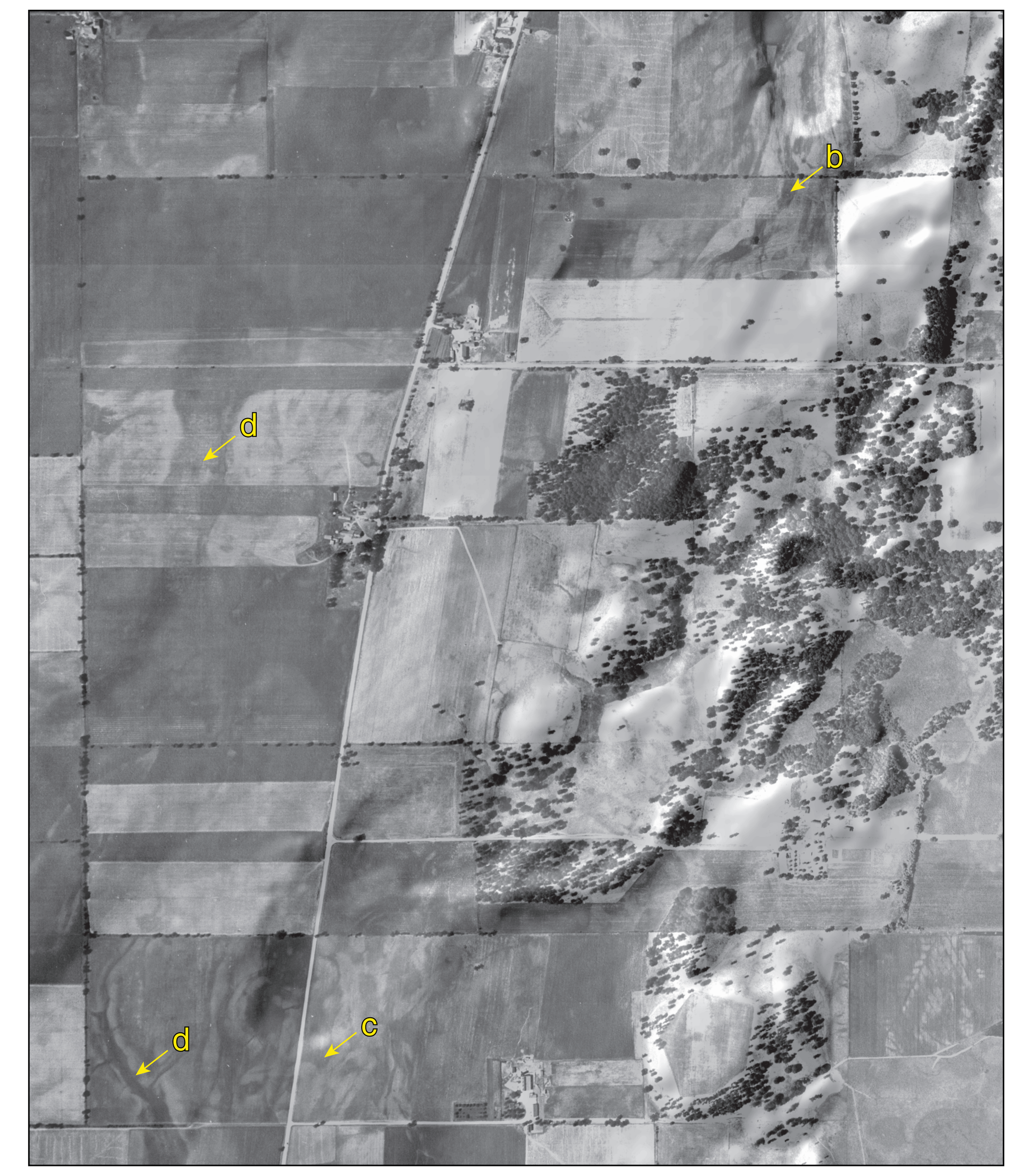

Figure 1 U.S. Geological Survey (USGS) aerial photograph of a portion of the Fox Lake Quadrangle acquired on July 23, 1946 (see main map). Relief shading created from historical USGS digital elevation model data has been incorporated into the aerial photograph to enhance the landscape features. See discussion for an explanation of the labeled features. Scale 1:12,000 (1 inch = 1,000 feet).

Figure 2 U.S. Geological Survey aerial photography mosaic of Grass Lake and environs acquired on July 24, 1946. Compare with the same area shown on the main map. See discussion for an explanation of the landscape changes that have occurred. Scale 1:24,000 (1 inch = 2,000 feet).

Landscape Interpretation

The main map shown at the left is created from aerial photography produced as part of the 2005 U.S. Geological Survey (USGS) Chicago High-Resolution Othoimagery project (Illinois State Geological Survey 2005). The source aerial photography was acquired over the Fox Lake Quadrangle on April 8 (western half) and May 4 (eastern half), and the resulting image map mosaic shows the landscape as it appeared in early spring.

The Fox Lake Quadrangle is situated within the rapidly urbanizing fringe of the Chicago metropolitan region, and much of the quadrangle area is devoted to residential and commercial land uses. Despite the fact that the aerial photography on the main map was acquired in early spring during the leaf-off portion of the year, the areas of agricultural land use show little or no evidence of near-surface geological features. The widespread adoption of conservation tillage practices beginning in the mid-1980s all but eliminated traditional fall-season plowing in Illinois, and crop residue now covers a majority of agricultural fields during a significant portion of the year [(a) on the main map], effectively masking subtle landscape features. Early aerial photography acquired during the late 1930s through the mid-1940s, prior to the widespread adoption of mechanized farming practices in Illinois, was at a time when horse- and mule-drawn equipment was still prevalent across much of the state. Because pesticide and fertilizer applications were not widely used in Illinois at that time, row crops were planted at much lower densities and with wider spacing to enable cultivation. The result is that near-surface geologic features can be easily discriminated through the mature summer crop canopy on these early aerial photographs (Panno and Luman 2012). Since then, agricultural equipment has become increasingly larger in scale, and the upper few feet of the land surface have been considerably modified after decades of intensive cultivation.

Figure 1 is a portion of a USGS historical aerial photograph acquired over the Fox Lake Quadrangle on July 23, 1946 (USGS 2013a), and the landform features have been enhanced using historical USGS digital elevation model data to create a three-dimensional landform model of the area. The surface topography of Lake County has largely resulted from the action of continental glaciers and glacial meltwater streams during the Wisconsin Episode, which occurred in northeastern Illinois approximately 30,000 to 16,000 years ago (Domier and Luman 2013). The changes in agricultural land management practices discussed above coupled with the growth of urban and built-up land use within the area have significantly altered the land surface. Nearly 70 years later, subtle landform features still evident on the 1946 aerial photograph are now obscured or completely absent on the present-day landscape. The hummocky topography on the right portion of Figure 1, resulting from the action of glacial ice, is now mostly obscured by dense woodland vegetation on the present-day aerial photograph (main map). The morphology of these low hills is made more discernible on the 1946 aerial photograph because of the savanna woodlands that originally dotted the landscape of Lake County. The distinctive mottled soil patterning apparent at (b) and (c) on the 1946 aerial photograph could be evidence of relict drainage related to glacial meltwater streams, as well as the shallow channels that can be seen at (d).

Figure 2 is an aerial photography mosaic depicting Grass Lake as it appeared on July 24, 1946 (USGS 2013b). Comparison with the main map shows the significant change in the area of open water that has occurred during the intervening decades. Present-day Grass Lake is a dammed impoundment with an open water area of approximately 1,360 acres. In comparison, the open water area in the 1946 aerial photography mosaic is only about 600 acres, less than one-half of the present-day acreage for Grass Lake. Sixty-seven years ago, nearly 700 acres of the lake surface was covered by Egyptian lotus beds (fig. 3), which at that time dominated large portions of Grass, Fox, Nippersink, and Pistakee Lakes in the Fox Lake Quadrangle. So ubiquitous and well-established were the lotus beds that boat excursions were commonplace beginning in the late 1800s (fig. 4). For a time, the lotus beds were an economic resource, and Chicago entrepreneurs hauled the lotus seedpods out of the lakes in truckloads and sold them as decorations. This continued practice, combined with a flood event in 1924, almost devastated the lotus beds. After a resurgence in their distribution during the 1930s, the surface area of lotus beds within the Chain O'Lakes area steadily declined through the late 1950s (Greenberg 2004). Evidence of this relict landscape is the unincorporated community of Lotus Woods on the Fox Lake Quadrangle, situated at the south margin of Grass Lake, whose name bears testimony to the once prodigious lotus beds in the region.

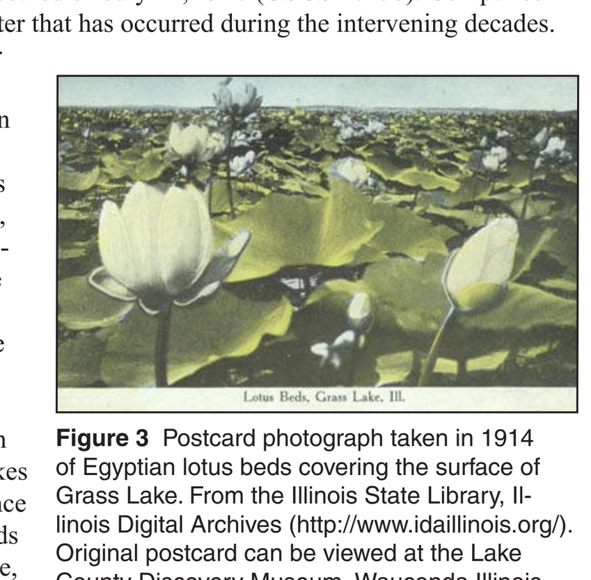

Figure 3 Postcard photograph taken in 1914 of Egyptian lotus beds covering the surface of Grass Lake. From the Illinois State Library, Illinois Digital Archives (http://www.idaillinois.org/). Original postcard can be viewed at the Lake County Discovery Museum, Wauconda Illinois.

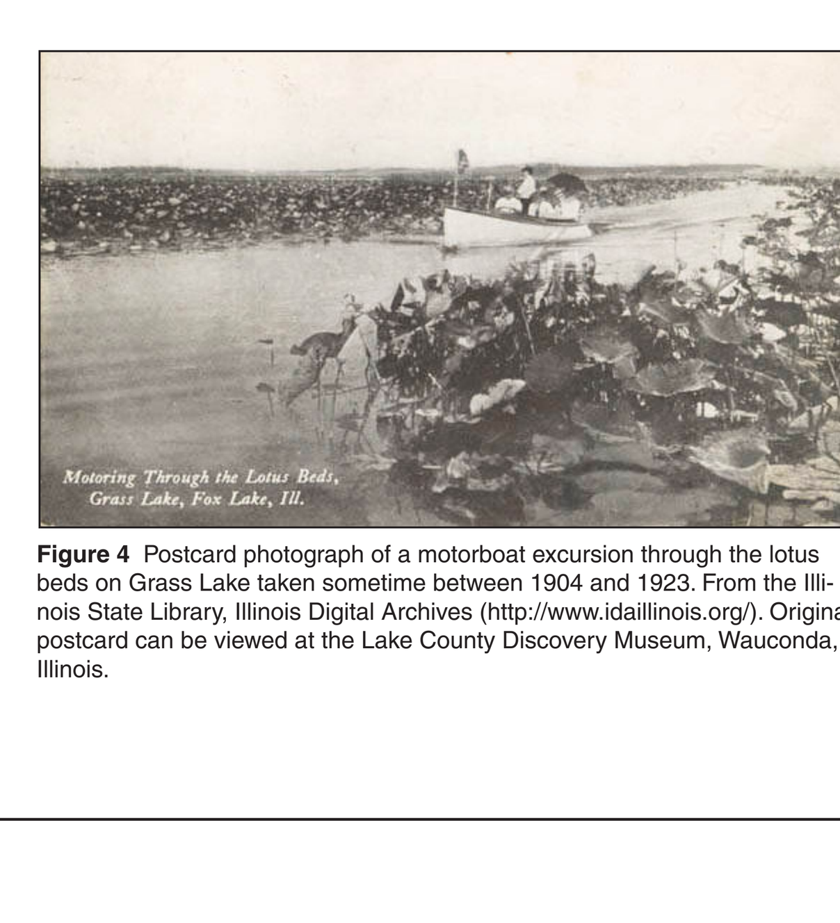

Figure 4 Postcard photograph of a motorboat excursion through the lotus beds on Grass Lake taken sometime between 1904 and 1923. From the Illinois State Library, Illinois Digital Archives (http://www.idaillinois.org/). Original postcard can be viewed at the Lake County Discovery Museum, Wauconda, Illinois.

References

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