

**AIRPHOTO INTERPRETATION OF  
DRAINAGE FEATURES  
OF  
KOSCIUSKO COUNTY, INDIANA  
JULY, 1956  
No. 26**

by  
Merle  
Parvis

**Joint  
Highway  
Research  
Project**

PURDUE UNIVERSITY  
LAFAYETTE INDIANA

AIRPHOTO INTERPRETATION OF DRAINAGE FEATURES OF KOSCIUSKO COUNTY, INDIANA

TO: K.B. Woods, Director  
Joint Highway Research Project

July 26, 1956  
File: 17-5-1D-91  
C-36-51A

FROM: Harold L. Michael, Assistant Director

Attached is a report entitled "Airphoto Interpretation of Drainage Features of Kosciusko County, Indiana." This compilation is in connection with an airphoto study of the application of the techniques in developing surface drainage maps of Indiana on a county basis. This report was prepared by Marle Parvis, Research Engineer, Joint Highway Research Project.

Included with the report is an scaled print of a drainage map of Kosciusko County, Indiana. This map was prepared entirely from airphotos.

Respectfully submitted,

*Harold L. Michael*

Harold L. Michael, Assistant Director  
Joint Highway Research Project

HLM:bad

Attachment

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Research Engineer

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Purdue University  
Lafayette, Indiana

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# AIRPHOTO INTERPRETATION OF DRAINAGE FEATURES

OF

KOSCIUSKO COUNTY, INDIANA

by

Harle Farvie

## INTRODUCTION

The drainage map of Kosciusko County, Indiana, which accompanies this report was compiled from 9" x 9" aerial photographs having an approximate scale of 1:20,000. These airphotos were taken in the summer of 1951 in connection with the United States Department of Agriculture map program, and the prints were purchased from the Commodity Stabilization Service, Performance and Aerial Photography Division, U.S.D.A. The drainage map was made to the scale of about one inch equals one mile on a base map prepared from the 1937 "General Highway and Transportation Map, Kosciusko County". Slight discrepancies in the base map grid were adjusted to agree with the airphotos.

With the aid of stereoscopes all discernible drainageways were marked on the odd numbered photographs with blue china-marking crayons. This drainage information was transferred from the airphotos by inserting the prints into a reflectoscope and tracing their images onto the base map.

Map symbols are identified by a legend. The names of cities, towns, lakes, and streams are added to facilitate the use of the map. An appropriate title is given the map. When available, approximate elevations of the several towns are shown in small figures enclosed in parentheses (1, p.413); these elevations are railroad elevations presumably at the depots in the

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1. Logan, W.H., "The Sub-Surface Strata of Indiana", Publication No. 108, The Department of Conservation, Indianapolis, Indiana, 1931.

various towns and cities.



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## General Features of The County

### Geography

Kosciusko County is roughly rectangular in shape. It is about 27 miles long (north-south) and about 21 miles wide (east-west). Its area is approximately 521 square miles (2, p. 189).

2. Ward, L.C., "The Soils and Soil Materials of the Northern Third of Indiana," 30th Annual Report, Department of Geology and Natural Resources, 1906, Indianapolis, 1907.

### Climate

The climate of Kosciusko County is continental, marked by warm summers and moderately cold, moist winters with wide ranges of temperature. The length of the growing season is about 163 days. The mean annual precipitation is 36.03 inches at Glimona Lake. The rainfall is fairly well distributed throughout the year; it is lowest in February and highest in May (3).

3. "Climate and Man," Yearbook of Agriculture, U.S.D.A., Washington, D.C. 1911.

### Physiography

Kosciusko County lies wholly within the Steuben Morainal Lake section of the Northern Moraine and Lake physiographic region of the state (4, p. 66). In

4. "Handbook of Indiana Geology," Department of Conservation, Indianapolis, Indiana, 1922.

respect to its physiographic situation in the United States, Kosciusko County lies within the Eastern Lake section of the Central Lowland province (4, p. 69).

### Topography

Kosciusko County has an average elevation of about 855 feet above sea level. Its highest point is about 950 feet, and its lowest point is about 770 feet. Maximum local relief is about 90 feet (4, p. 81). The topography is diversified. It varies from the nearly level outwash plains in the northern part to the hilly portions of the morainic areas.

## Geology

The surface and near surface geologic ages represented in the county are the Silurian, Devonian, Mississippian, and Quaternary periods (1, p. 413). There are no known rock outcrops (1, p. 413).

Bedrock. "The bedrock formations of Kosciusko County are mainly of Devonian age. A small area in the southern part of the county may have Silurian strata underlying the glacial drift and a small area in the northern part of the county may have rocks of Mississippian age under the drift" (1, p. 413).

Glacial Materials. All Kosciusko County was glaciated. "The glacial covering attains a thickness of more than 300 feet" (1, p. 413).

The Packerton moraine covers much of the southeastern third of the county; this moraine traverses the county in a southwest-northeast direction. The Brackett, the Bronson, and the New Paris moraines (extending at right angles to the Packerton moraine) are located in the southwest, northwest, and northeast parts of the county respectively.

## Soils

The soils of Kosciusko County have been developed from glacial materials.

The soil types of the Miami Catena seem to predominate in the areas between the larger streams. Bellefontaine, the soil type on granular hills, belongs to this catena. Coloma soils are also found in these general areas.

The soils bordering the Tippecanoe River in the central part of the county, Bel River in the southeastern part of the county, and Turkey Creek in the northern part of the county, belong to the Fox-Testland, Oshtemo, and Genesee catenas.

Mucks have been mapped as Carlisle, Houghton, and Edwards soils.

The soils of two small areas northeast of Lake Janasee have been mapped as belonging to the Sano-Toledo-Fulton catena.

In the central-eastern part of the county there is a small area of soils belonging to the Plainfield-Berrian catena (5).



### Gravel

Granular materials are plentiful in almost every part of the county. This is verified by a study of the airphotos and by Ward who wrote, "Probably no other county in this part of the state (the northern third) has so much good gravel so well distributed as Kosciusko" (2, p. 191).

## STREAM SYSTEMS

### Drainage Basins

Kosciusko County lies within three major drainage basins of the state. The northern part of the county is in the Elkhart subdivision of the St. Joseph drainage basin. A small area in the northwestern corner is in the Kankakee drainage basin. The southeastern corner is in the Eel subdivision, and the central part of the county is in the Tippecanoe subdivision of the Wabash drainage basin (4, p. 271).

### Principal Streams

The principal stream in Kosciusko County is Tippecanoe River. It heads in Tippecanoe Lake, but the actual watershed extends into Noble and Whitley counties through many connected lakes.

The northeastern part of the county is drained by Turkey Creek. It is the outlet stream of Lake Wawasee and flows in a westerly direction to Milford. It then curves to the north and enters Elkhart County where it joins Elkhart River. Lake Wawasee receives much of its water supply from streams and lakes in west-central Noble County.

The northwestern corner of the county is drained in a westerly direction by Yellow River into Marshall County. Dausman Ditch drains an adjoining area on the south. It too flows in a westerly direction into Marshall County where it joins the Yellow River.

Eel River crosses the southeast corner of the county. It enters from Whitley County and flows across the county in a southwesterly direction for about 3



plies before entering Wabash County. Harrisonus Creek joins Eel River from the east and Swank Creek joins it from the northwest. Several other small streams (including Clear Creek and Silver Creek) drain the south-central part of the county in a southerly direction into Wabash County and then into Eel River.

The Chippewauk Creek system drains the southwest corner of the county westerly into Fulton County where it joins the Tipppecanoe River.

#### Lakes and Ponds.

There are many lakes in the county. Some of the named ones are as follows:

#### Lakes

Winona	Reeds
Swansee	Stoller
Sebec	Wyland
Willetts	Hannon
Hoffman	Stanton
Crystal	Shoo
Palestine	Guy
Goose	Pike
Carra	Center
Caldwell	Robinson
Yellow Creek	Dewart
Beaver Dam	Papaksechie
Loon	Shock
Higgins	Spear
Rock	Webster
Silver	Tipppecanoe
Mud	Herron
Muskelungo	Barbee Lakes
Fish	Ridinger
Sellers	Daniel
Johnson	

#### Dredged Ditches

Many of the streams have been dredged. This has been done also to "improve" drainage in the morainic and swampy areas.

#### DRAINAGE PATTERNS

Drainage patterns of Kaskaskia County vary from the almost complete absence of developed drainage systems in the outwash plains to the haphazard patterns of the morainal regions. The dredging of streams and the construction of ditches has added a rectilinear effect to the drainage patterns

in nearly all parts of the county (6).

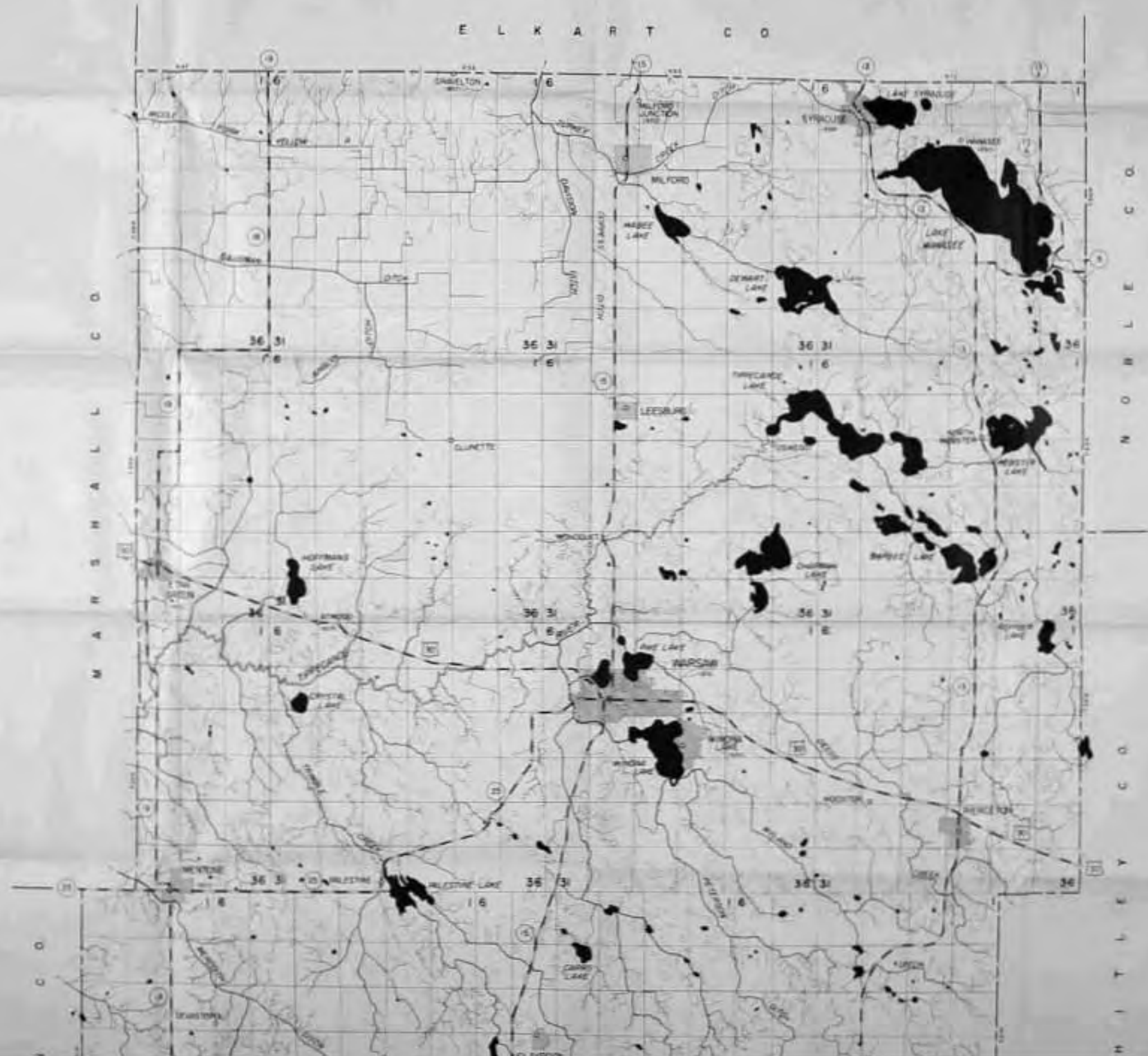
6. Parvis, H., "Regional Drainage Patterns of Indiana," A Thesis, Purdue University, Lafayette, Indiana, 1947.

#### ACKNOWLEDGMENTS

The author wishes to acknowledge the assistance given by all those persons who have helped in the preparation of this report. Special acknowledgments are due members of the Joint Highway Research Project Advisory Board for their active interest in furthering this study; Professor H.L. Michael, Assistant Director of the Joint Highway Research Project, for his valuable suggestions and review of the report; and to the several individuals in the Airphoto Laboratory who have aided in the compilation of the map.

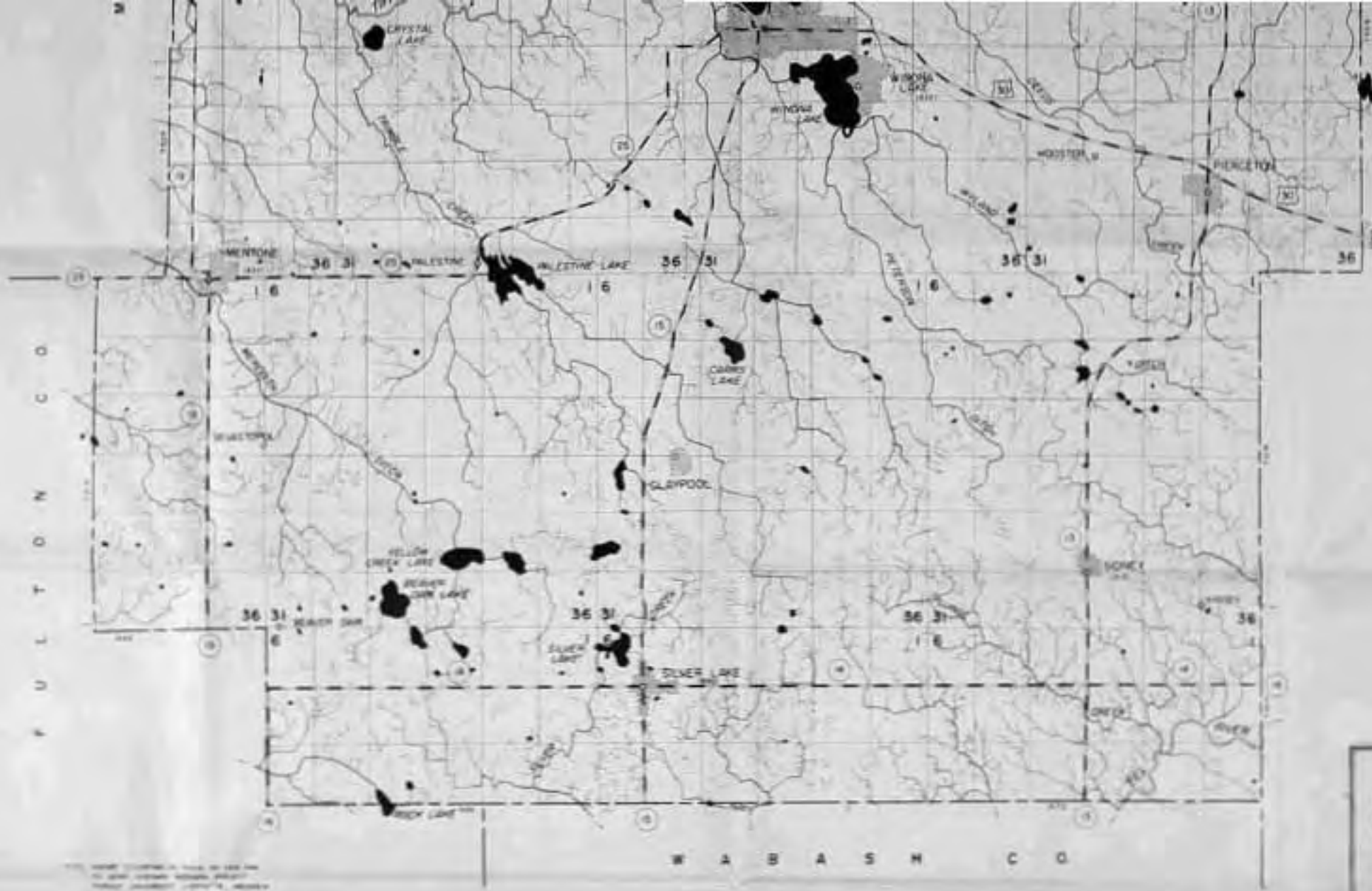
All airphotos used in connection with the making of the map automatically carry the following credit lines: "Photographed for Commodity Stabilization Service, Performance and Aerial Photography, U.S.D.A."

E L K A R T C O



C O  
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H I T L E Y C O



W H I T L E Y C O

F U L T O N C O

W A B A S H C O

## DRAINAGE MAP KOSCIUSKO COUNTY INDIANA

PREPARED FROM  
1954 A.A.A. AERIAL PHOTOGRAPHS  
BY  
JOINT HIGHWAY RESEARCH PROJECT  
AT  
PURDUE UNIVERSITY  
1956



**LEGEND**

- CITIES AND INCORPORATED TOWNS
- UNINCORPORATED CITY ADDITIONS
- STATE CAPITAL
- COUNTY SEATS
- OTHER TOWNS AND VILLAGES
- U.S. AND STATE HIGHWAYS
- STATE LINE
- COUNTY LINE
- CONGRESSIONAL TOWNSHIP CORNERS
- SECTION LINES
- APPROXIMATE ELEVATIONS
- MAJOR STREAMS
- PERENNIAL STREAMS
- INTERMITTENT DRAINAGE WAYS
- CANALS — BROOKS
- LANES AND PONDS
- INFILTRATION BASINS
- SINK HOLES — ELEVATED AREAS
- DAMS — HEADMILLS