

## GEOLOGY AND GEOGRAPHY

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### ABSTRACTS

**Socioeconomic Variations of Black Residential Areas in Terre Haute, Indiana.** JOHN McCLAIN, Department of Geography and Geology, Indiana State University, Terre Haute, Indiana, 47809.—Within Terre Haute there are six black residential areas, ranging in size from a high of 409 black households to a low of 29. In analyzing these areas, 24 socioeconomic variables were considered within the following data categories: (1) quality of residences, (2) occupant characteristics, (3) public facilities, (4) economic activities, and, (5) social facilities. *1970 U.S. Census of Housing* statistics and interview data collected according to standard sampling techniques were utilized in the research. Chi square analysis was selected since the scales of measurement and range in area sizes made traditional analysis of variance inappropriate. Tests for significant differences among and between the areas were computed and, when found to be significant, contingency coefficients were derived. With this procedure, significant socioeconomic variations among and between the residential areas were identified and the significant variables rank-ordered on the basis of their contingency coefficients.

**Land Use Change and Impacts on Flood Plains.** REGINALDO DOS SANTOS and ROBERT D. MILES, School of Civil Engineering, Purdue University, West Lafayette, Indiana 47907.—An analysis of land use change in the Happy Hollow Park watershed and the growth of the delta in the Wabash River was made using aerial photography obtained at 10 different periods of time from 1929 to 1974. The analysis showed that when corrections were made for river stage fluctuations that the delta formed on the west bank of the Wabash River and significantly increased in size as the land use changed from agricultural-forest to residential-forest. The most critical period of delta formation occurred during the period from 1953 to 1968 as the home sites were under construction and large areas of exposed soils were subject to runoff and erosion. The analysis shows that an equivalent area of erosion on the east bank of the Wabash River has also occurred. Attempts to model the changes were not successful. Recent photography shows that the delta may be stabilized as all property has been developed but east bank erosion may increase without protective works.

**Land Use Mapping of the Indiana Dunes National Lakeshore.** WAYNE E. KIEFER, Department of Geography, Central Michigan University, Mount Pleasant, Michigan 48859.—The land use in and around the Indiana Dunes National Lakeshore was mapped during 1974 as part of

a comprehensive environmental inventory. Land use maps were compiled for 1938 and 1958 from U.S. Department of Agriculture aerial photographs. Seventeen categories of vegetative cover were mapped within the National Lakeshore and the area of each mapped unit was measured. The data provides a comprehensive inventory for the planners at the National Park Service and a base line from which to measure and assess change.

**Highway Route Location Utilizing Remote Sensing Techniques, Ft. Wayne, Indiana.** S. G. JORDAN and T. R. WEST, Laboratory for Applications of Remote Sensing, Purdue University, West Lafayette, Indiana 47906.—Analysis of remotely sensed data from northeastern Ft. Wayne, Allen County, Indiana, provided evaluations of several route corridors for the Indiana Highway Commission currently planning a dual-lane by-pass around the city. Computer-assisted classification of ERTS imagery (June 8, 1973) was supplemented by the county engineering soils and the agricultural soils maps, plus 9" x 9" aerial photography used as ground-based data.

Relationships among spectral response of soils, soil textural groups and landforms were also investigated. Soils developed on the two landforms, the Lake Maumee Plain and Wisconsin ground moraine, were sufficiently similar that accurate delineation was not possible through spectral response alone and the wavelength bands available from the ERTS satellite.

Classification of the ERTS imagery did contribute positively to the selection of corridors. Detected were poorly drained areas containing a high degree of organic soil which were not indicated on the two surface-materials maps. This allowed for delineation of corridors beyond troublesome areas at an early stage in the planning process.

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