

THE WABASH RIVER SYMPOSIUM

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Important in both the natural and cultural history of the region, the Wabash River is considered The River of Indiana, and it is the designated State River. From its origin in the state of Ohio to its junction with the Ohio River, the Wabash runs 765 km. From the dam in Huntington, Indiana to its terminus at the Ohio River, the Wabash flows freely for 661 km of its total length, the longest stretch of free-flowing river in the United States east of the Mississippi River (Fig. 1). Several papers in this issue of the *Proceedings* of the Indiana Academy of Science are devoted to aspects of the biodiversity, environment, and conservation of the Wabash River drainage. This series of papers developed from a symposium on the Wabash River held in conjunction with the 2005 annual meeting of the Academy. The following introduction will provide a brief overview of the Wabash River, the 2005 symposium, and the Wabash River section of this issue of the *Proceedings*.

The Wabash River basin is comprised of a series of 12 watersheds that were designated by the State of Indiana in 1956 (Clark 1980). The Wabash River drains an area of 32,910 square miles (85,560 sq. km), including about 8,704 square miles in Illinois and another 285 square miles in northwestern Ohio. The Wabash River crosses two ecoregions and is the largest drainage in Indiana (Omernik & Galant 1988). The principal tributary is the White River, which drains the Eastern Corn Belt Plain and the Interior River Lowland. The Wabash River drains central and southern Indiana and flows in a southwesterly direction. The mainstem Wabash River is the principal drainage of the Interior River Lowland.

The population of the Wabash River basin, within the State of Indiana, included approximately 3.56 million people in 2000 (U.S. Census Bureau, <http://quickfacts.census.gov/qfd/states/18000.html>). This represents 58.9% of the entire population of Indiana. The economy of the basin is primarily agriculture; but manufacturing is of significant importance. Land use in the Wabash River is primarily agricultural (66%); however, significant portions in the southern watershed are comprised of forest (15%), and urban land uses (13%) (Purdue University, http://pasture.ecn.purdue.edu/~jychoi/wd_home/).

The upper Wabash River consists primarily of ground moraine and end moraines deposited during the Wisconsin glacialiation (Fenneman 1946; Schneider 1966). The upper Wabash includes areas covered by the Packerton Moraine, which is within the Northern Lake and Moraine region, while the remaining area is in the Tipton Till Plain (Wayne 1956). The topography is nearly flat to gently rolling and has gentle land slopes except near the downstream reach of the Wabash River, where entrenchment of the river valley is greatest. The Wisconsin glacialiation event and other consolidated deposits in Indiana did not fully cover the lower Wabash River (Fenneman 1946). Thus, these areas may have been refugia for species pushed south by the glacier. Deposits from the Illinoian and older glacialiation events were more discontinuous. As many as eight or nine distinct till sheets overlap in western Indiana. Elevation within the basin is greatest in Randolph County, which is slightly more than 366 m and lowest at the mouth of the Wabash

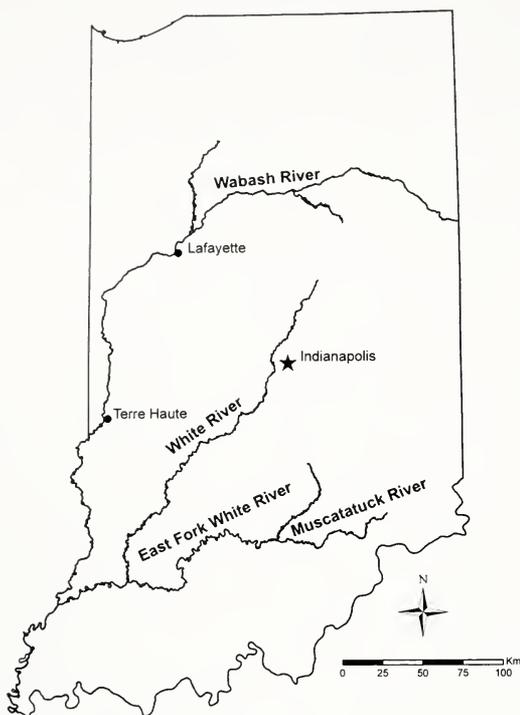


Figure 1.—The Wabash River Basin, draining portions of Illinois, Indiana, and Ohio. (Map by Peter A. Worcester, Geology Department, Hanover College)

River which is about 92 m above mean sea level.

Average annual precipitation is about 110 cm with an average monthly value ranging from a high in March and a low in October (Clark 1980). About 65% of the annual precipitation is used through evapotranspiration, while 34.8% comprises stream flow. The long-term average temperatures range from 0 °C in January to 25 °C in July. The average annual temperature is 14 °C. The average precipitation ranges from 92–112 cm from north to south. The average annual snowfall ranges from 178 cm to 41 cm from north to south. Snowfall contributes between 5–18 cm of average annual precipitation.

Soils in the Wabash River basin include clay glacial till soils in the upper Wabash, loamy glacial tills to moderately thick loess over loamy glacial till in the central watershed, and discontinuous loess over weathered sandstone and shale in the lower watershed (Clark 1980). The topography of the Wabash River ranges from a plain of mostly clay till

interspersed with looping belts of rolling, hummocky ridged morainic upland to rolling plains underlain by loess, till, and bedrock with broad valley flats underlain by thick deposits of alluvium, outwash, and lake deposits (Schneider 1966).

The Wabash River was well-known for its abundant fish during the early 1800s, but declines occurred through a combination of increased agriculture, manufacturing activities, and urban impacts in the watershed. These events culminated in multiple fish kills during the 1970s (Gammon 1998). Reduced point-source pollutants and increasing awareness of non-point source agricultural run-off have improved water quality, although excessive nutrients appear to contribute to summer algal blooms and decreased water clarity. These improvements were likely in response to legislation including the Clean Water Act of 1972 (www.epa.gov) and Payment-In-Kind (PIK) in 1983 (Gammon 2005). The PIK program reduced agricultural loadings of nutrients to the river by 25% (Gammon 1998). Today numerous conservation and political organizations in the State of Indiana, including The Wabash River Heritage Corridor Commission, the Wabash Riverkeepers, and The Nature Conservancy, work to protect and preserve the natural and cultural heritage of the Wabash River.

The Wabash River was the focus of a special program at the Fall Meeting of the Indiana Academy of Science (held on 6–7 October 2005 at St. Mary of-the-Woods College near Terre Haute, Indiana). The Wabash River Symposium was planned and organized by the Biodiversity and Natural Areas Committee of IAS and the Rivers Institute at Hanover College.

The Wabash River Symposium included several components. On October 6, the Rivers Institute hosted a reception and dinner. Dinner was followed with a keynote address by Dr. James Gammon of DePauw University. Dr. Gammon began working on the Wabash River in the 1960s. The title of Dr. Gammon's talk was "A Wabash River Overview—Past, Present and Future." He provided a personal reflection on 40 years of research on the river. Dr. Gammon is the subject of a biographical article in this issue of the *Proceedings*. The Symposium continued on the morning of 7 October with a special session of ten presentations regarding the biodiversity and conser-

vation of the Wabash River. Topics covered fish and mussels of the Wabash (T. Simon, M. Pyron and B. Fisher), small mammals of the Wabash Valley (J. Whitaker, Jr.), plant communities of the Wabash Valley (M. Jackson and M. Homoya), environmental quality of the Wabash River (L. Bridges and S. Sobat), and conservation issues (R. Schnapp and R. James). Research and review articles based on some of the Wabash Symposium presentations plus several invited articles on related aspects of the Wabash environment appear in this issue of the *Proceedings*.

On the afternoon of 7 October, 35 scientists and volunteer naturalists, including a number of the Wabash session presenters, took part in a short-term "BioBlitz" on Otter Creek, a tributary of the Wabash River in Vigo County. A BioBlitz is a rapid assessment of the biodiversity of a specific site by taxonomic experts. A full BioBlitz lasts for 24 hours and may involve hundreds of participants; this event took place on one afternoon with a smaller number of participants. The BioBlitz participants split into aquatic, terrestrial plant, and terrestrial animal teams. The results of the Otter Creek BioBlitz are reported in this issue and are posted on the Academy website.

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