# From Bogus Soils to Web Soil Survey

By: Darrell Schulze

> "Sir: For many years numerous requests have been received from landowners in northern and northwestern Indiana that the Bureau of Soils investigate the characteristics and properties of drained lands, and particularly of a certain class of lands known locally as "bogus" soils."
> Soil Survey of Tippecanoe County, Indiana, 1906.

Soil surveying began in Indiana in 1902 with field work for Posey County. Lead by the U.S. Department of Agriculture, in cooperation with the Indiana State Department of Geology, the work was done using time-consuming plane table surveying techniques, often by workers with more training in geology than soils. The maps, soil descriptions, and interpretations were simple by current standards, but reflected the state of the art of the time. The well-worn copies of early soil surveys in the Agronomy Department archives, attest to their importance in the teaching, research, and extension missions of the Department during its early years.

In 1919, the Agricultural Experiment Station became the cooperator with the USDA, and in 1921, Thomas M. Bushnell joined the Agronomy Department as head of soil survey activities. Bushnell's innovations affected soil survey not only in Indiana, but nationally. He was a member of the committee that standardized the description of soil colors using the Munsell system still used today. He pioneered the use of aerial photography in soil mapping, and as a result, Jennings County, Indiana became the first in the United States to be mapped solely on aerial photographs. He incorporated Milne's catena concept into a taxonomy of Indiana soils, published in 1944 as the *Story of Indiana Soils*.

Soil surveys became more accurate, detailed, and useful as advances in mapping and concepts of soil developed in concert with better approaches to soil use and management. Sections on soil management written by Alfred T. Wiancko, the Agronomy Department's first Head, and Samuel D. Conner, the Department's first chemist, began appearing in surveys in 1919.

Herbert P. Ulrich became the second leader of the soil survey program for the AES in 1951. He and Harry H. Galloway, land use extension specialist, introduced estimated crop yields, tables of use and management, block diagrams relating soils and topography, and the first general soil association maps in published soil survey reports.

A few years after Donald P. Franzmeier became the third leader of the AES soil survey program in 1970, Indiana embarked on an accelerated soil survey program as a result of a requirement that soil survey information be used to evaluate farmland for tax assessment. By 1986, all counties had been mapped to modern standards by soil scientists supported by federal, state, and county funds. Franzmeier emphasized research to support the work of the field soil scientists, particularly in understanding the relationship between measured soil water tables and soil morphology. He also was instrumental in the

establishment of a professional registration program, the Indiana Registry of Soil Scientists. After completion of the accelerated soil survey, emphasis shifted to detailed, site-specific investigations for the permitting of on-site waste disposal systems led by Joseph E. Yahner, extension specialist in nonagricultural soil uses. In the ’60s and ’70s, Alvin L. Zachary led many surveys, taught soil classification, genesis and survey, and coached soil judging teams.

Our current faculty continue the long cooperative relationship the Agronomy Department has had with the National Soil Survey Program, now administered by the USDA-Natural Resources Conservation Service (NRCS).

Soil survey continues to change with the times. In January of this year, digital soil survey data for all of Indiana became available from NRCS. With a few clicks of a mouse, anyone can access soil survey information for any part of the state via the Internet and Web Soil Survey (http://websoilsurvey.nrcs.usda.gov). Our students learn from this vast digital database in new and exciting ways by studying soil maps displayed on rugged Table PCs on their laps while they are in the field studying soils and landscapes first hand.

The landowners who wanted more information on their “bogus” soils, soils that were unproductive because they were too wet, deficient in potassium, or highly acidic, could never have imagined where more than100 years of soil survey would lead.