Soil Scientists Find a Role Among Consultants

H. J. Byrd and H. J. Kleiss

Many cause and effect relationships among soils within landscapes are predictable. Innovative individuals are coming to understand how soil systems work and how the soil system affects a particular land use.

In decades past, soil scientists focused on crop growth and soil management for agricultural purposes. After World War II, agronomic skills from an enlarged knowledge of basic soil processes produced larger crop yields. With this grasp of plant growth requirements, predicting growth of trees in a forest quickly followed. The role of soil is now well accepted in silvicultural practices.

Using soil criteria drawn from the Manual of Septic Tank Practice (U.S. Dep. Health Educ. Welfare Public Health Serv., 1963), and similar ideas for rating soil (and predicting what works and doesn’t work) soil scientists added tables of nonfarm uses of soil to soil survey reports. The Soil Survey of McIntosh County, Georgia (Byrd, 1962) with its tables of engineering information caused quite a stir among highway planners of the area. Never before had maps and information of that type been available for an entire county in that part of the state. The publishing process required soil scientists of that period to reorganize their information into a more user friendly format.

Historically, draining a swamp and converting it into an agricultural field or a shopping mall had been solely an engineering endeavor. Off-site implications were seldom considered. Beginning in the 1960s, increased societal awareness about our environment created a need for innovation and expansion in the application of soil science. Assistance in placement of roads and streets for house lots and using on-site waste disposal systems in difficult soils suddenly came within the scope of soil scientists and became major activities. Our skills were sought in the regulation and permit requirements as a means to minimize adverse impacts on the land. In the process, modification of soil landscapes, heretofore with unforeseen and sometimes chaotic consequences, became more orderly and predictable.

How Did It Happen?

Most, if not all land modification takes place in the soil zone (the unconsolidated mass of materials near the surface, including the solum). Being able to characterize this zone (knowing its properties) and understanding the zone as part of a surrounding system became the key to predicting consequences of land use change and management.

Many achievements in the knowledge of soils occurred while our concept of soil was being revolutionized by an evolving soil taxonomy and the accumulation of a multitude of facts. This accrual of knowledge centered around individual pedons. Data bases about pedons grew exponentially but the data has been