Development of Soil Survey Interpretations

A. A. Klingebiel

Much progress has been made in developing and improving soil survey interpretations since 1973, but the basic principles used then still apply today. With the exception of a brief historical review, most of the actions discussed here occurred from 1954 to 1973.

Historical Events

For those interested in the history of soil surveys in the USA, I suggest you read the articles written by Dr. Roy Simonson, which were published in Soil Survey Horizons in 1986 and 1987 (Simonson, 1986a–d and 1987a–c).

In the early 1920s, Hugh Bennett was a soil scientist with the USDA. He observed serious erosion occurring on certain soils. Bennett was an evangelist. It was mainly through his efforts that Congress set aside funds in the late 1920s to establish soil erosion experiment stations throughout the eastern two-thirds of the country. Soil and water losses were measured on various soils and slopes and under different management practices. These data became benchmarks for rating soils for erosion hazard and the effects of different management practices on soil and water losses.

In 1933, Bennett convinced Congress to set up the Soil Erosion Service. In 1935, this became the Soil Conservation Service (SCS) (Geiger, 1955). The basic concept of the SCS was to help farmers and ranchers develop conservation plans on their land based on soil surveys. The SCS had a separate division that encompassed a research group headed by Dr. Mark Nichols. He was responsible for the erosion experiment stations. The remainder of the SCS was an operations program. Soil maps were made at scales of 4 and 8 in. to the mile for individual farms and ranches. The symbols on the map indicated the kind of soil, the percent of slope, and the degree of erosion. Soil maps were made directly on aerial photos where available.

In the late 1920s, Dr. Charles Kellogg worked with the Michigan State Highway Department where he related kinds of soil to frost damage to highways. The results were the first evidence to show a correlation between kinds of soil and road deterioration. In 1930, he went to North Dakota State University as professor of soil science and to be in charge of the soil survey program. There he worked on the soil survey of McKenzie County, North Dakota, which was funded by the county to provide a base for the assessment of rural lands. After developing criteria for evaluating soils to land productivity and land values, he wrote the first article published on the subject (Kellogg, 1933; Simonson and Ulmer, 1989). In 1934, Dr. Kellogg was appointed Chief of Soil Survey for the Bureau of Plant Industry (BPI), USDA.