Wetlands are an important natural resource in the biosphere. Traditional terms used to describe wetlands are marshes, bogs, and swamps. Early European settlers considered these areas as wastelands and did not appreciate their values. For a number of years, many of these areas were drained and used as farmland, since these lands were found to be productive. Over a 200-yr time span (1780–1980), the lower 48 states lost an estimated 53% of their original wetlands. In the midwestern farm belt states, over 14.5 million ha of wetlands have been drained since European settlement (Dahl, 1990). The values and functions of wetlands include: groundwater recharge, water supply, floodwater storage, sediment trapping, pollution control, and wildlife habitat (Mitsch and Gosselink, 1986). The environmental and socioeconomic benefits of wetlands are now recognized, as evidenced by our national policy on wetland protection and preservation. In May 1977, President Carter issued Executive Order no. 11990, Protection of Wetlands, which became official policy of many federal agencies. The most significant federal law affecting wetlands is the Clean Water Act of 1977 (P.L. 95-217), Section 404 jurisdiction, which protects wetlands by requiring a federal permit for draining and filling. The federal agencies involved in protecting wetlands include: the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Department of Interior, and the U.S. Department of Agriculture—Soil Conservation Service.

Wetlands are complex ecosystems that are poorly understood relative to terrestrial and aquatic systems. Difficulties in characterizing wetlands reach beyond the problem of variability associated with natural systems, owing to the fact that wetlands frequently are situated in the landscape between terrestrial and aquatic systems and therefore possess characteristics of both. Wetlands function as important links between the terrestrial and aquatic systems by serving as sinks, sources, and transformers of nutrients and chemical contaminants, and thus have a significant impact on downstream water quality and ecosystem productivity.

Since there are different types of wetlands, a single definition cannot be used to adequately characterize these ecosystems (Cowardin et al., 1979). At present, the legal definition used by the U.S. Army Corps of Engineers in regulating wetlands is: “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”. However, the single feature that most wetlands share is soil that is at least periodically inundated by a rising water table or flooding.

The three major components of wetlands are water, vegetation, and soils. Wetland research has traditionally been centered on vegetation, wildlife, and systems ecology. Past studies of wetland processes and system functions have given little or no attention to soil-related processes or the role of soils in wetland ecosystems. The soils component is often ignored. For example, a recent report by the National Academy of Sciences entitled “Restoration of aquatic ecosystems: Science, technology and public policy” failed to include the role of soils in overall functioning of wetlands (National Research Council, 1992). However, this report identified key issues needing to be addressed in protecting and preserving wetlands from a biological point of view. Unfortunately, even the National Academy of Sciences failed to include a soil scientist on the committee responsible for evaluating the science, technology, and public policy related to the restoration of wetlands and this limitation is seriously reflected in the report (National Research Council, 1992). Too often, the policies made on wetlands at the national and international levels have minimal input from soil scientists. At present, three professional societies address wetlands-related issues, but none have clearly focused on the role of soil scientists. For example, the Society of Wetland Scientists primarily serves biologists working with wetlands, while the American Society of Limnology and Oceanography primarily addresses issues related to lakes and ocean environments. The Ecological Society of America also addresses wetlands at the ecosystem level, but with little focus on soils-related issues.

Increased emphasis on the importance of wetlands at local, state, and national levels demands thorough study of all components of wetlands, including soil. Soil scientists are already actively involved in several research areas related to wetlands and need a proper forum for publishing the results and for discussing major wetlands-related issues. Soil scientists can and must play a major role in research areas such as: (i) hydric soil characterization and delineation, (ii) wetland biogeochemical processes, (iii) agronomic aspects of wetlands, (iv) use of natural and constructed wetlands for water treatment, (v) influence of wetlands on global climatic change, and (vi) other environmental and ecological impacts. For example, the role of soils is a major consideration when wetlands are used as sinks for pollutants. The ability of wetlands to retain or release pollutants is affected by the physical, chemical, and biological characteristics of associated soils. Attempts at quantitative evaluation of the assimilatory capacity of wetlands for pollutants have been inadequate due to the traditional mass-balance or empirical black-box approach taken by wetland researchers. By overlooking the processes involved, such models are of limited value and their usefulness often is restricted to the systems from which they were derived. Similar concerns were expressed by Wetzel (1991) on research and educational programs in limnological sciences. There