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From Soil Properties to Soil Functions and Beyond: Paradigm Change in Soil Science?

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This presentation will address the evolution of soil science as a scientific discipline within the context of Thomas Kuhn's "The Structure of Scientific Revolutions". Soil science began as an extension of interests shared with geology, geography, chemistry, and agriculture. Early practitioners focused on the spatial distribution and properties of soils primarily to assess their suitability for the cultivation of crops. As sub-disciplines developed (soil chemistry, soil physics, and soil biology), soil maps and interpretations became more detailed. The pedologists' interpretations were now informed by the accumulated knowledge of soil processes and how they affected and were effected by soil properties. More recently, fewer and fewer resources are devoted to field soil mapping and research on pedology with a greater proportion of funding now invested in the study of soil functions including how they relate to ecosystem services. Does the current scenario represent a natural evolution of soil science as a discipline or does it represent a paradigm shift? In either case, what are the consequences and opportunities for the future of soil science?

Keywords: soil science, paradigm, ecosystem services



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