

## Introduction

This volume represents the proceedings from the 11th North American Forest Soils Conference, held June 22–26, 2008 in Blacksburg, Virginia, USA. The theme for the conference “Forest Soil Science: Celebrating 50 Years of Research on Properties, Processes and Management of Forest Soils” captures the celebratory, but thoughtful, nature of the conference. Forest soil researchers and practitioners representing 11 countries, and all the continents except Antarctica, convened for a series of talks, posters, discussion sessions and field tours. This look backward, and forward, was timely and revealing.

The field of forest soils research has not always existed, nor has it long been a truism that forest soils were worthy of study. Within the Soil Science Society of America, it was not until 1949 that Forest Soils as a separate area of scholarly study came into being, as a subdivision of the Soil Genesis, Morphology and Cartography Division. In 1962, the Forest Soils Division was created, and the exploration of the relationships between soil and forest cover began to expand. The First North American Forest Soils Conference was held in 1958 at Michigan State University, hosted by Don White. It brought papers from members of all four sponsoring organizations – the Society of American Foresters, the Canadian Institute of Forestry, the Soil Science Society of America and the Canadian Society of Soil Science, and was deemed such a resounding success, that it was decided to meet again in five years and, hopefully, at 5-year intervals, thereafter. Chet Youngberg volunteered to host the second conference in 1963 at Oregon State. That covered the west coast. After that it was obvious that the east coast, and further south needed attention. Thus the third conference, in 1968, was held at North Carolina State University. Then the North American Forest Soils Conference moved to eastern Canada with Laval Université in Quebec being the host. As early as the second conference, there were participants from beyond the US and Canada, and internationalism has expanded to the point that the North American Forest Soils Conference is now the pre-eminent conference worldwide dealing with research into issues related to forest soils. At the 11th North American Forest Soils conference, scientists from the U.S., Canada, Mexico, Australia, New Zealand, Germany, Japan, India, Bangladesh, China, and Finland contributed to a global perspective.

Thus, the North American Forest Soils Conference has documented a 50-year heritage of achievement in the study of forest soils, both in North America and elsewhere – documentation found in the 322 articles of the 10 preceding volumes and continuing with those presented here in this volume. From the beginning the published volumes have presented peer-reviewed, cutting-edge science and remain standard references for decades.

During the past 50 years, the fields of research and discovery have progressed from descriptions and empirical predictions to understanding the processes and the role of specific components that make forest ecosystems function as they do. This conference expands on previous themes while also addressing emerging topics. Sessions dealing with *Forest Site Evaluation and Mapping*, *Fertility and Tree Nutrition*, *Linkages between Forest Soils and Water Quality and Quantity*, and *Management Effects on Growth, Productivity and Sustainability of Forest Ecosystems* sound reminiscent of earlier meetings. Yet a quick perusal of this volume shows that we are not simply “prisoners of the past” (McFee and Kelly, 2005). What has changed are the levels of understanding and investigation.

For example, while *Forest Site Evaluation and Mapping* is a common thread, even dating back to the First North American Forest Soils Conference (Anon. 1958), scientists at the 11th North American Forest Soils Conference considered the use of site evaluation and mapping to address topics related to current issues of acidic deposition and climate change. Elias and coauthors describe a means of

mapping the susceptibility of forest lands to effects of acidic deposition, and Arp et al. identify a geospatial framework for modeling gaseous N emissions from forest soils. In a very different paper, Schwarzl et al. present a model-based approach to mapping soil water conditions (water balance, soil water content, etc.) in forest sites in Germany.

The keynote papers (Van Miegroet, Neary and Burger) provide thorough and delightful perspectives on where forest soils research has been during the last 50 years, while individual papers in the topical sessions provide evidence of progress and forward thinking. A number of papers report on long-term research studies now coming to fruition, such as Footen et al., in which the effect of fertilizers applied in the first rotation are evaluated for their effects on the second rotation growth and nutrition of Douglas fir forests in the Pacific Northwest. Both D’Amore et al. and Crow present new hypotheses about soil-nutrient processing and availability for consideration by the reader, and should be the topic of good debate.

Readers of this special issue will find familiar topics, yet new information and techniques for addressing the current and future research needs associated with the vibrant field of forest soils. This vibrancy and current health of the discipline of forest soils can be attributed to the many significant changes during the last 50 years:

1. The tools for data handling and analysis available off the shelf are far more sophisticated, dependable, and faster than the best that existed in 1958. Modern computer capabilities used in routine data reduction and analysis weren’t even a daydream 50 years ago.
2. Advancements in laboratory analytical technology for plant and soil elemental and ionic analysis are equally impressive. Mass spectrometers, automated elemental and ionic analyzers, nuclear magnetic resonance spectroscopy, gas, ion and liquid chromatography, infrared spectroscopy, plasma emission spectroscopy -- to name only a few -- are all part of the arsenal of tools available today.
3. Field-monitoring technology has also progressed enormously. Solid-state data loggers that can be left unattended for extended periods of time to monitor a variety of climatic and soil parameters are readily available and reasonable in cost.
4. Today’s funding levels were simply nonexistent historically.
5. Those engaged in forest soils research today, including university faculty and their students, government research laboratories, and those in the private forestry sector, are far more numerous than those involved five decades ago. This is no accident, but rather the direct and deliberate infusing of new researchers into the field through university graduate programs.

The field of forest soils research has progressed significantly during the 50-year span of the North American Forest Soils Conference. This volume represents yet another step in the progression, and we look forward to the next 50 years!

## References

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