“We might say that the earth has the spirit of growth; that its flesh is the soil.” Leonardo da Vinci
Agenda

8:30–8:40 am
Welcome and Introductions

8:40–9:20 am
Dirt: The Erosion of Civilizations, David Montgomery, University of Washington

9:20–10:00 am
Humanity’s Transformation of Earth’s Soil, Daniel Richter, Duke University

10:00–10:40 am
The Hidden World Beneath Our Feet: What it Does For Us, Diana Wall, Colorado State University

10:40–11:20 am
Sustaining Soil Quality on a Warming Planet, Rattan Lal, The Ohio State University

11:20–11:50 am
Panel discussion

11:50–12 noon
Closing remarks

“Dig It! The Secrets of Soil”
Opens July 19, 2008 Smithsonian’s National Museum of Natural History


“Dig It!” includes interactive displays, hands-on models, videos, and soil samples. Visitors can explore soil found in their own backyard and in obscure locations, with 54 soil samples representing each U.S. state and territory, as well as soil maps and touchable soil models from around the world. In doing so, visitors will discover a world teeming with life.

The exhibition is sponsored by the Soil Science Society of America and the Nutrients for Life Foundation, which is underwritten by The Fertilizer Institute.

Following its showing at the National Museum of Natural History, “Dig It!” will travel to museums across the country through 2013 through the Smithsonian Institution Traveling Exhibition Service.

Additional information about “Dig It! The Secrets of Soil” is available at:

http://forces.si.edu/soils
www.sites.si.edu/soils
www.soils.org/smithsonian
A soil ecologist, Diana is actively engaged in research exploring how life in soil (microbial and invertebrates), contributes to healthy, fertile and productive soils and society. Her research includes global investigations and 18 seasons in the Antarctic Dry Valleys examining global change impacts on soil biodiversity and carbon cycling. Wall Valley, Antarctica, 77°29’S, 160°51’ E was designated in recognition of her research in 2005. Diana is involved in many national and international scientific activities, including serving on the U.S. National Commission of UNESCO. She served as President of the Ecological Society of America, American Institute of Biological Sciences, Society of Nematology and other scientific organizations. Diana has received honors including an Honorary Doctorate from Utrecht University, The Netherlands. She received her Ph.D. at the University of Kentucky, Lexington.

Rattan Lal
Professor of Soil Physics, School of Natural Resources and Director, Carbon Management and Sequestration Center, FAES/OARDC, The Ohio State University

Prior to joining Ohio State in 1987, Rattan was a soil physicist for 18 years at the International Institute of Tropical Agriculture, Ibadan, Nigeria where he conducted long-term experiments on land use, watershed management, soil erosion processes as influenced by rainfall characteristics, soil properties, methods of deforestation, soil-tillage and crop-residue management, cropping, and mixed/relay cropping methods. Since joining The Ohio State University, Rattan has continued research on erosion-induced changes in soil quality and developed a new project on soils and climate change, demonstrating that accelerated soil erosion is a major factor affecting emission of carbon from soil to the atmosphere. Other research interests include soil compaction, conservation tillage, minesoil reclamation, water table management, and sustainable use of soil and water resources of the tropics for enhancing food security. Rattan is a fellow of the Soil Science Society of America, American Society of Agronomy, Third World Academy of Sciences, American Association for the Advancement of Sciences, Soil and Water Conservation Society, and Indian Academy of Agricultural Sciences. He is the recipient of numerous awards and a honorary Doctor of Science from Punjab Agricultural University, India and of the Norwegian University of Life Sciences, Aas, Norway. He is past president of the Soil Science Society of America, the World Association of the Soil and Water Conservation, and the International Soil Tillage Research Organization. He was a member of the U.S. National Committee on Soil Science of the National Academy of Sciences (1998-2002). He has authored and co-authored 1,100 research publications, he has written 9 and edited or co-edited 43 books.

Daniel D. Richter
Professor of Soils and Ecology and Director of Graduate Studies of the University Program in Ecology, Duke University

Completing a B.A. at Lehigh (1973), graduate studies at Mississippi State and North Carolina State Universities, and a Ph.D. at Duke (1976), he worked as a Post-Doctoral Scientist at Oak Ridge National Laboratory, before joining the faculty at the University of Michigan in 1984 and the faculty at Duke in 1987. He is the author or coauthor of nearly 100 scientific papers and the Cambridge University Press book, Understanding Soil Change: Soil Sustainability over Millennia, Centuries, and Decades (2001). Currently, Daniel focuses his research on the human- transformation of the biogeochemistry of Earth’s soil. Scientific papers examine soil changes over time scales of decades of the contents, fractions, and cycling of C, N, P, Ca, K, Mg, and trace elements B, Fe, Mn, Cu, and Zn. Since 1988, Richter has worked at the Long-Term Calhoun Soil Experiment in the Piedmont of South Carolina, a collaborative study with the USDA Forest Service, that seeks to understand how soils form as natural bodies and are transformed by human action, such as management for cotton and subsequent reforestation by pine. In 2004, Daniel and colleagues initiated a project to network the world’s Long-Term Soil-Ecosystem Studies (LTSEs), and using an advanced format website (<http://ltse.env.duke.edu/>), they have assembled metadata on 250 experiments from every continent. The LTSEs project held its first workshop at Duke University in December 2007, hosting representatives from Africa, Asia, Australia, Europe, and the Americas.

David Montgomery
University of Washington

Professor David R. Montgomery is an award-winning leader in the study of geomorphology, the evolution of landscapes. He graduated from Stanford University in 1984 with a B.S. in geology and from U.C. Berkeley in 1991 with a Ph.D. in geomorphology. He is the Director of the Quaternary Research Center and a professor in the Department of Earth & Space Sciences at the University of Washington. His research interests range from the co-evolution of the Pacific salmon and the topography of the Pacific Northwest to the environmental history of Puget Sound rivers, interactions among climate, tectonics, and erosion in shaping mountain ranges, and giant glacial floods in eastern Tibet and central Alaska. He is the author of over 180 publications in the scientific literature, as well as Dirt: The Erosion of Civilizations and King of Fish: The Thousand-Year Run of Salmon, and senior editor of a volume on the Restoration of Puget Sound Rivers.
The National Academies

The National Academies perform an unparalleled public service by bringing together committees of experts in all areas of scientific and technological endeavor. These experts serve pro bono to address critical national issues and give advice to the federal government and the public. The National Academies consist of four organizations: the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council. The National Academy of Sciences was created in 1863 by a congressional charter approved by President Abraham Lincoln. Under this charter, the National Research Council was established in 1916, the National Academy of Engineering in 1964, and the Institute of Medicine in 1970.

The National Academy of Sciences was created by the federal government to be an adviser on scientific and technological matters. However, the Academy and its associated organizations are private, not governmental, organizations and do not receive direct federal appropriations for their work. Studies undertaken for the government by the National Academies usually are funded out of appropriations made available to federal agencies. The great majority of the studies carried out by the National Academies are at the request of government agencies. There are approximately 1,100 staff members.

www.nationalacademies.org

U.S. National Committee for Soil Science

The International Society of Soil Science became a member of the International Council for Science (ICSU) in 1993 and in 1998 transformed itself into the International Union of Soil Sciences (IUSS), requiring national organizations to belong to the union. Because the National Academy of Sciences is the national adhering body to ICSU and most of its member unions, representatives of the soil science community asked that the NAS be the adhering body to the IUSS. The U.S. National Committee for Soil Science (USNC/SS) was formed in 1998 to carry out this activity.

The USNC/SS advises the National Academies in all matters pertaining to the IUSS and supports U.S. participation in the international arena. To identify relevant issues for the committee to address, the USNC communicates with professional societies and organizations. By building channels of communication, the committee seeks the involvement of the U.S. soil science community to prioritize issues of concern and evoke a dialog on each priority area.

The U.S. National Committee for Soil Science (USNC/SS) provides leadership in the advancement of soil science nationally and internationally. By building channels of communication, the committee seeks the involvement of the U.S. soil science community to prioritize issues of concern and elicit a dialog on each priority area. Among its activities, the USNC manages travel awards for young scientists to attend international meetings and organizes symposia and workshops.

www.nationalacademies.org/usnc-ss

Soil Science Society of America

The Soil Science Society of America (SSSA) is a progressive, international scientific society that fosters the transfer of knowledge and practices to sustain global soils. Based in Madison, WI, and founded in 1936, SSSA is the professional home for 6,000+ members dedicated to advancing the field of soil science. It provides information about soils in relation to crop production, environmental quality, ecosystem sustainability, bioremediation, waste management, recycling, and wise land use.

SSSA supports its members by providing quality research-based publications, educational programs, certifications, and science policy initiatives via a Washington, DC, office.

SSSA is the founding sponsor of an approximately 5,000-square foot exhibition, “Dig It! The Secrets of Soil,” opening July 19, 2008 at the Smithsonian’s National Museum of Natural History in Washington, DC.

www.soils.org

International Union of Soil Sciences

The International Union of Soil Sciences (IUSS) is the global union of soil scientists. The objectives of the IUSS are to promote all branches of soil science, and to support all soil scientists across the world in the pursuit of their activities. The society was founded as the International Society of Soil Science (ISSS) on 19th May 1924. The IUSS is a scientific union member of the International Council for Science. The scientific activities of IUSS are undertaken through 4 Divisions and each Division has 4 to 6 Commissions.

www.iuss.org

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Sounds of Science Podcast

The NAS Sounds of Science weekly Podcast to be released on 18 July 2008 will feature Dr. Sally Brown, University of Washington and member of both the U.S. National Committee for Soil Science and the Soil Science Society of America.

http://media.nap.edu/podcasts/