



## Bouyoucos Conference on Soil Stewardship in an Era of Global Climate Change

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George Bouyoucos (1889-1981)

**ABSTRACT** Scientists often struggle with ways to effectively communicate the scope of environmental degradation, the potential consequences, and viable actions to ameliorate those consequences. The objectives of this conference were 1) to briefly review the development of environmental ethics as it relates to modern western science, 2) to discuss the possible advantages and risks of linking scientific analyses and arguments on environmental issues with human value systems as represented by ethical principles, and 3) to develop recommended practices for engaging non-technical audiences on the contributions soil scientists are capable of making in addressing environmental concerns. Participants in the conference discussed how science is perceived by non-scientists, especially those individuals whose actions may be influenced more by ethical principles than scientific or economic analyses. For example, there has been a recent and unexpected environmental movement sometimes referred to as "green faith" where religious leaders have focused on teachings taken from various faith traditions that support enhanced stewardship of the earth's resources. Environmental scientists and leaders from an ethics or religious background are sometimes on separate but parallel paths working toward the goals of improving efficient resource utilization while protecting environmental quality for future generations. Interaction between these two groups has been severely limited by the secular nature of science in western culture and real or perceived disagreement on sensitive social issues. Greater awareness of the areas of agreement between scientific and ethical perspectives of soil stewardship should improve educational efforts and augment our profession's contribution to developing solutions for pressing environmental problems like global climate change. Various written products of the conference prepared by writing teams will summarize the conference proceedings, list relevant resources for further study (books, articles, web sites), and identify opportunities and recommendations for more effective outreach activities.

**Organizers:** Tom Sauer USDA-ARS and John Norman, University of Wisconsin-Madison

**Keynotes:** Fred Kirschenmann, Leopold Center for Sustainable Agriculture  
Michael Nelson, Michigan State University  
Cal DeWitt, University of Wisconsin-Madison

**Attendees:** E. Scot Blehm, Office of Rep. Jeff Fortenberry (R, NE)  
Sebastian Braum, Yara North America, Inc.  
Eric Brevik, Dickinson State University  
Tom Bruulsema, International Plant Nutrition Institute  
Robert Dobos, USDA-NRCS  
Dory Franklin, USDA-ARS  
Anne Hallum, Stetson University  
Robert Horton, Iowa State University  
Amy Kaleita-Forbes, Iowa State University  
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## An Urgent Appeal for Soil Stewardship

From the 2009 Bouyoucos Conference on Soil Stewardship in an Era of Global Climate Change

Upon viewing the deforested and eroded landscape near Attica, Greece in the 4th century BC, the philosopher Plato vividly described the loss: "What now remains compared with what then existed is like the skeleton of a sick man, all the fat and soft earth having wasted away, and only the bare framework of the land being left." Plato's observation of soil degradation is no less relevant 2400 years later. If the importance of healthy soils for nutritious food and clean water has been known for millennia, why has an enduring commitment to thoughtful soil stewardship proven so elusive to so many and for so long?

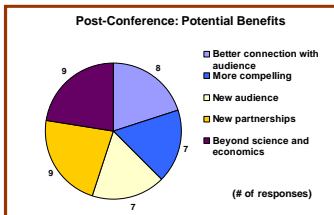
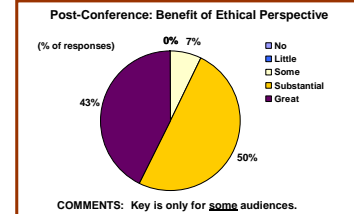
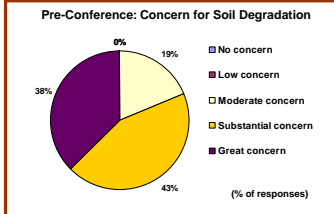
Soil is a fundamental source of life. It plays a critical role in providing water, nutrients, and support for plant growth, recycling organic materials and protecting surface and ground waters from contaminants. Soil is the base of the terrestrial food chain, directly or indirectly providing over 97% of the calories that now nourish more than six billion people. This modern bounty was enabled by a providential combination of weathering processes that created fertile soils from inert rock and favorable climates suitable for growing a variety of food plants. At the start of the 21st century we express our deep-felt concern that three of the integral resources of agricultural production, soil, water and climate, are increasingly impaired by human actions with potentially serious consequences for global food security.

We are, each of us, people of the soil. Most indigenous peoples and organized religions have oral or written accounts of human origin or experiences that include a deep reverence associated with the life that springs from the soil. Our cultural traditions acknowledge the significance of soil even if our environmental practices do not. The facts about the current condition of global soil resources are sobering. Recent estimates are that one fourth of the earth's inhabitants already depend on degrading lands. Future generations may be forced to obtain ever more sustenance from decreasingly available productive land. Potential changes in rainfall and temperature patterns and their variability as the global climate changes add yet another challenge. There is a long and tragic correlation between cultures that fail to protect the health of their soil and the demise of those same cultures. Life, as we perceive it, exists only on a planet having soil, as we know it. Soil is the interface between lifeless cosmic rock and all terrestrial life. Healthy soil is itself a living community, containing up to four billion microorganisms in each teaspoon. But soil is also a fragile, finite resource requiring care. Destroying soil is the equivalent of destroying the self-renewing capacity of the Earth.

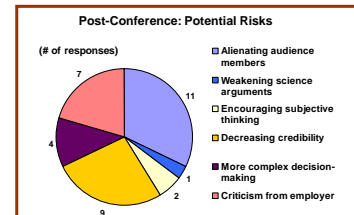
Too often we forget our shared human history and the reality of our dependence on the soil. Too often we fail to enact our historical and rightful commitment to the land, our home place. We are therefore shirking our inherent responsibility to care for the planet. The poor of the world are those most immediately and dramatically affected by both soil degradation and climate change, therefore, soil stewardship is both an environmental and a moral challenge to society.

What is the way forward? What is our task in the face of this reality, this disconnect between the importance and the condition of our soil? We recognize and affirm a cultural and physical link to soil. We assert a shared obligation to soil stewardship that is based on more than purely utilitarian concerns. We acknowledge that soil degradation is an ethical issue, that science and economics alone will not and can not determine a proper course of action. We cannot therefore ignore the mistreatment of our lands and at the same time escape moral denunciation. Encouraging a more broad and thoughtful soil stewardship ethic is not naive, idealistic, or altruistic but rather perceptive, pragmatic, and essential to our societal response to the challenges posed by global climate change and an increasing human population.

Given that our environmental problems stretch beyond the domain of any particular discipline, genuine solutions to these problems will only be found by engaging all facets of the human mind. We call for soil scientists to humbly and dutifully work across disciplines – including the humanities and the arts, in efforts to engage in a practice of public scholarship with the goal of building new relationships and networks that advance the soil stewardship ethic. We call for the products of such collaborations to be openly communicated to the public and to policy makers, raising awareness and urging proactive action. Finally, we call for the recognition and celebration of successful soil stewardship stories to serve as examples, to inspire, and to lead us forward.



COMMENTS: Greater complexity is a benefit (not a risk), greater public appreciation for science, greater contribution to sustainability, recognizing no "value-free" inquiry.



## Recommendations for Linking Scientific and Ethical Perspectives in Presentations

- Proceed with caution
- Introduce topic in a gentle way and give scientists time to adjust
- Explore some of the best literature to improve both scientific and values inquiries
- Use these perspectives only for the right audience, setting, and speaker
- Keep a clear distinction between ethical and scientific content
- Universality of soil as a medium of food growth needs to be established/reestablished
- Use terminology appropriate for the audience
- Remember that general public thinks differently than typical scientist
- Focus on topics that the audience cares about and in terms that they can identify with
- Should be done carefully and by the right people or in collaboration between soil scientist and ethicist – could be powerful