SOIL BANKER

Tools for Soil Wealth Evaluation and Management

We propose to bring together a synergistic group of individuals and organizations to **create a flexible tool to quantify soil services** that can be used at any scale, and by any stakeholder. Our overarching goals are to develop metrics and indices to quantify soil ecosystem services, monitor change of these services, and guide management. As scientists engaged in soil research, we want to make our expertise and knowledge useful to all stakeholders by:

- Establishing open source, community datasets and standards for assessing the current state, ecosystem service, and socio-economic value of soils
- Tracking changes in soil services over time following prescribed management scenarios
- Creating soil metrics and future mitigation scenarios for soils that incorporate language relevant to economists, land managers, and communities
- Providing information for evaluating soil services that include both scientific data and socio-economic valuation, and
- Promoting education of soil services to the business, science, and management communities, as well as the civil society

We will launch this initiative with a proposal to SNAPP (please see link below) that will focus on peatland ecosystem services. If funded, the proposal would support a series of 3-4 workshops to be held in Santa Barbara, California over a two-year period. The first meeting would be scheduled for late 2017 or early 2018.

Link to SNAPP: https://www.nceas.ucsb.edu/content/snapp-call-proposals-2017

Although our long-term goal is to generalize this system so that it can be applied to any type of soils, we propose to focus on peatlands because of the tremendous amount of carbon and water they contain, the lack of spatially-explicit maps, and increasing pressure from many industries. We also hope to build a bridge between the many groups devoted to peatland research and conservation, including PAGES's C-PEAT and UNEP's Global Peatland Initiatives. We intend to work both on global peatland ecosystem service assessments as well as on case studies from the high-latitude and tropical regions, for which we have reached out to The Nature Conservancy and the Wildlife Conservation Society for guidance.

Primary questions of the Soil Banker:
1- What is the capacity of soils to supply services to users and communities?
2- How can we develop metrics for valuing soil services based on scientific datasets to fit specific needs of managers and decision makers?
3- What is the trajectory of soil service, and how might it change under alternative management scenarios?

Primary tasks of the Soil Banker:
1- Gather existing soil data that can be translated into a Soil Service Index
2- Create time trajectories by coupling the Soil Service Index to existing models to which we will add a 'soil management layer'
3- Assess future Soil Service Trajectories that are based on different management decisions and soil valuation schemes