

Using Practitioner Ecological Knowledge to Build Better Communication

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Background. Understanding how humans impact the natural world, and how the natural world impacts humans, is of critical importance in the twenty-first century. Environmental sciences – from earth to agriculture – seek to build better understanding of ecosystem services and to remediate, mitigate, or adapt to environmental constraints. While scientists are recognized as “experts”, many members of the lay public hold vital knowledge that could affect how we respond to environmental challenges. In Indigenous contexts, Traditional Ecological Knowledge has been used to understand past events and develop solutions to wicked problems. More generally, farmers, miners, fisherpeople, and others hold deep stores of knowledge and ways of thinking about the planet. This project seeks to tap into the deep knowledge of practitioner groups to build better communication between environmental science and practice.

Research Opportunity. This research opportunity is a multi-step project seeking to incorporate practitioner knowledge into actions around resource use and mitigation/adaptation to environmental change. Work will be conducted in Dr. Libarkin’s Geocognition Research Lab (GRL). Step 1. In the first step, a systematic literature review will evaluate the place of practitioner ecological knowledge in development of practice and policy for land use. Step 2. This component of the research constitutes a cases study undertaken in collaboration with Dr. S. Snapp (*MSU Plant, Soil and Microbial Sciences*). Dr. Snapp’s lab utilizes LandPKS, a mobile app for rapid soil/vegetation characterization, in work with farmers in Malawi and Tanzania. This is a unique opportunity to contribute to a multidisciplinary research team and develop tools that directly support smallholder farmers. Interviews will consider how farmers acquire, use, and share information with each other. Depending on the scholar’s interests, this might include a community network analysis (Wood et al., 2014) and other approaches to consider how different stakeholders (farmers, scientists, extension agents) are connected via information sharing. Step 3. The systematic review of Step 1 and the analysis of Step 2 will be combined to develop practical recommendations for incorporating practitioner knowledge into research, outreach, education, and extension activities. We anticipate the potential for one publication emerging from each step of the research opportunity (three total). The proposed work would benefit from a collaboration with a scholar who conducts network analysis, communication, indigenous studies, participatory development, community engaged scholarship and/or sustainability studies.

AAP Priority Areas. The research opportunity sits at the interface between AAP Priority Areas of *Education* and *Agri-food Systems*.

Early Career Researcher Mentoring. To facilitate integration into the university and research team, the scholar will participate in weekly meetings with Libarkin, separate weekly GRL lab meetings, and monthly collaborative project meetings with personnel from the GRL and Snapp’s lab. The scholar will be encouraged to participate in a suite of MSU seminars held on human dimensions research, responsible conduct of research, and environmental science.

Early Career Researcher Activities. The scholar, mentor, and project collaborators will co-develop a work plan with anticipated focus on: 1) engaging in mentoring activities; 2) conducting the three research steps as outlined above; and 3) developing instruction or an educational activity for guest lectures in graduate courses within Dr. Libarkin’s home department (*Earth and Environmental Sciences*).

References

Wood, B. A., Blair, H. T., Gray, D. I., Kemp, P. D., Kenyon, P. R., Morris, S. T., & Sewell, A. M. (2014). Agricultural science in the wild: A social network analysis of farmer knowledge exchange. *Plos One*, 9(8).