Integrating Community Science and Data from the National Ecological Observatory Network: Building Connections and Strengthening Resiliency in Local Communities

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Background/Objectives. The integration of large-scale, open data into community science projects provides an exciting opportunity for ecological science to contribute to society and strengthen climate resiliency. Open data networks and related resources have the potential to increase access to high quality data for communities, allowing communities to use these resources to address their priorities. While access to large-scale data has recently increased dramatically through the development of environmental data collection networks, several barriers such as time, training, expertise, and funding impose limits on the integration of large-scale environmental data into community science projects. Particularly, the scope and complexity of these datasets can be a substantial hurdle for community members. To address this hurdle the National Ecological Observatory Network (NEON), a continental-scale facility that provides long-term, open access, ecological data from 81 field sites across the United States, worked with the American Geophysical Union's Thriving Earth Exchange (AGU TEX) program to connect with communities solving local environmental challenges. Specifically, NEON Field Ecologists were trained as TEX Fellows and connected local communities with scientists, data, and NEON resources to co-develop projects that advance local priorities. These collaborative projects involve a diverse set of community groups, including educators, residents, local government officials, and community-based non-profits.

Approach/Activities. In this presentation I will share the process for developing community partnerships, focusing on my experiences with the Tennessee Citizens for Wilderness Planning (TCWP). The TCWP has been maintaining a natural area containing several rare species for over three decades. Their community science project focused on creating a baseline species list of all present biota to use as an educational tool and baseline for future management plans. I matched two complementary scientists to the project, who developed NEON-influenced methods for collecting a range of data. They also performed some basic analysis to better understand how the current management practices were affecting native and invasive species. One of the scientists plans to use this baseline data to find and maintain other similar habitats in a nearby protected area. This project resulted in a greater network of local scientists and community members interested in furthering protection of areas threatened by habitat degradation. In additional to my project, I will also highlight several other projects that directly connect local communities with scientists to address impacts of climate change: local Alaskan communities tracking berry production in the changing climate to address food security issues, monitoring Blue Oaks in California to inform local landowners on bast practices, resulting in more climate-resistant rangelands, effect of climate-driven natural disasters on a local community's water supply in Puerto Rico.

Results/Lessons Learned. Building these partnerships came with some challenges, including scheduling conflicts, limited staff bandwidth, low response rate, and relating NEON resources to community priorities. Best practices for overcoming these challenges included capitalizing on pre-existing connections, consistent communication, being flexible and creative, finding commonalties, and being humble and embracing discomfort. Moving forward, NEON will continue to support ongoing projects and is training the next group of NEON TEX Fellows to start future community science projects.