

COMMENTARY

The Power of Place in Citizen Science

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When people show up to search a lake for invasive plants, or venture into tangled shrub swamps to count egg masses, or withstand cold temperatures to count birds on Christmas Day, we know that something powerful motivates them. We also know that because of the geographic focus, intensity of effort, and duration of observations the information that citizen scientists collect has real relevance for making conservation decisions that affect various habitats and species. But what are the links between motivations for citizen science, connections to place, and conservation decision outcomes? A group of researchers and practitioners posed this question at the 2015 Citizen Science Association conference in San Jose, California. Our facilitated conversation at the conference grew into an interdisciplinary exploration of these relationships in a paper published in a special issue of *Biological Conservation*, entitled “Leveraging the Power of Place in Citizen Science for Effective Conservation Decision Making” (Newman et al. 2016).

Based on our collective experiences working in citizen science initiatives all over the world, we identified how connection to place matters for involvement in citizen science and for linking the information that citizen scientists collect with on-the-ground decision making for conservation outcomes. We looked at 134 combined case studies in three major citizen science programs, including Earthwatch, a global program where citizen science volunteers can work directly with researchers in

fee-based service projects; CitSci.org, an international online platform that supports citizen science programs; and the Stewardship Network New England, a regional network of community-based monitoring programs. Our approach allowed us to combine our different disciplinary lenses to define place in multiple ways (Massey 2005; Stedman 2003). The natural scientists among us focused on ecological and material conceptualizations of place, while those in the social sciences identified how place is culturally shaped and created. Together, we built a framework for understanding place as a combination of five different elements including

- social-ecological—how the ecology of a physical place and the flow of matter and energy supports life and human well-being;
- narrative and name based—how the place-name and associated stories create cultural meanings and attachments to a place;
- knowledge based—which acknowledges the diversity of ways of knowing about a place;
- emotional—the affective response people have to a particular locale and the memories that shape experiences in a place over time;
- performative—a dynamic factor that recognizes how places continually change and how people can (re)make places through relational practices.

Building from this multidimensional understanding of place, we then used mixed methods, combining qualitative thematic interpretations with quantitative statistical analysis, to identify the extent to which programs identified the goal of connecting citizen science with conservation decision making, indicators that they accomplished this goal, and the ways in which the program sought to connect with the five place dimensions. Overall, we found most citizen science projects (89 percent) intend to inform conservation decision making, and 54 percent showed evidence of connecting knowledge with conservation actions. We also found a statistically significant relationship between place and conservation outcomes, where programs that had success in using citizen science information also engaged a greater number of place dimensions in their program. Our results indicate that the quality and extent of connections to place in citizen science programs may shape linking citizen science data with conservation decision making.

This work matters because if citizen science programs want to accomplish specific conservation-related goals, they need to design programs in ways that help them understand, over time, whether they are meeting these goals and how they can redirect efforts to achieve their intended outcomes. Further, this research helps show how place is a key factor in motivations to participate and in linking knowledge with action. We encourage citizen science programs to harness the power of place in their

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programs and provide specific recommendations such as the need to explicitly incorporate the concept of place into programs in multiple ways and also increase place-based collaborations. Attending to place can activate our curiosity and help us move out of our comfort zones and into the natural and human communities that are waiting to be understood and where, working together, we can make informed decisions about our shared futures. 🐟

REFERENCES

Massey, Doreen. 2005. *For Space*. Sage Publications, Thousand Oaks, CA.

Newman, G., M. Chandler, M. Clyde, B. McGreavy, M. Haklay, H. Ballard, S. Gray, R. Scarpino, R. Hauptfeld, D. Mellor, and J. Gallo. 2016. "Leveraging the Power of Place in Citizen Science for Effective Conservation Decision Making. *Biological Conservation* 208:55–64. <http://dx.doi.org/10.1016/j.biocon.2016.07.019>

Stedman, Richard C. 2003. "Is It Really Just a Social Construction?: The Contribution of the Physical Environment to Sense of Place." *Society and Natural Resources* 16:671–685.

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