Arboriculture & Urban Forestry 2018. 44(6):233–235

Civic Science in Urban Forestry: Introduction to a Second Special Issue

Lara A. Roman, Lindsay K. Campbell, and Rebecca C. Jordan

Abstract. This special issue is the second of two dedicated to civic science. As shared in the first special issue, "Civic science in urban forestry is a means of engaging the public in the study, management, and care of urban trees, and includes varied approaches with different disciplinary foundations" (Roman et al. 2018). We describe highlights from six articles (including original research and short communications) that assess program evaluation, data quality, and volunteer motivation. With these articles, we aim to continue our consideration of current best practices and future research needs for urban forestry community science.

Key Words. Citizen Science; Civic Ecology; Co-management; Knowledge Co-production; Participatory Research; Urban Ecology; Urban Forestry; Data Quality.

This is the second special issue that resulted from a symposium entitled, "Citizen Science & Urban Forestry: Research & Practice." That event was hosted by the United States Department of Agriculture (USDA) Forest Service Philadelphia Field Station and the Pennsylvania Horticultural Society, and was held in May 2016. The first special issue was published in March 2018, with six articles covering civic science projects initiated by researchers, municipalities, and amateurs, and spanning topics including volunteer participation, motivations, and attitudes, as well data quality from citizen scientists (Almas and Conway 2018; Bancks et al. 2018; Crown et al. 2018; Hauer et al. 2018; Johnson et al. 2018; Silvera Seamens 2018). In our introduction to that previous issue (Roman et al. 2018), we reviewed key terms and concepts related to civic sciences and discussed future research needs. In this introduction to the second special issue, we briefly review the second set of featured articles.

PAPERS IN THIS SPECIAL ISSUE

As with the first special issue on civic science in urban forestry, the papers in this special issue include both Original Research and Short Communication articles. We are using Short Communication articles as practitioner notes for urban forestry professionals and researchers to share evidence-based evaluations of their program, addressing topics such as best practices for citizen science, data quality, programmatic motivations for engaging volunteers, cost-effectiveness, and cross-program comparisons (such articles are designated with †). We summarize below the six articles featured in this special issue; the articles address topics spanning data quality, shifting citizen science program goals, and volunteer engagement strategies—including community based social marketing and the role of identity in greenspace participation.

Two papers assessed data quality in volunteer tree inventories (Hallett and Hallett this issue; Hamilton et al. this issue †). Working with Boy Scout volunteers in the former, and with undergraduate students in the latter, these studies highlight the value of bringing in a volunteer workforce to assist with inventories. With issues related to species identification or gross levels of decline (e.g., as the result of emerald ash borer attack), volunteers were able to provide highly accurate data sets. At a finer grain, discrepan-

cies in levels of tree stress existed between the Boy Scout volunteers and experts. The undergraduate volunteers varied with experts in terms of measuring tree size (e.g., diameter at breast height). These disagreements indicated a need to prioritize the necessary levels of precision in order to affect changes in management practice.

Roman et al. (this issue †) also discussed volunteer data quality, within a larger case study of an evolving citizen science young tree monitoring program in Philadelphia, Pennsylvania, U.S. That program, Tree Checkers, has volunteers assessing recently planted tree survival, vigor, and stewardship within their neighborhoods, while also reminding residents to do tree care. The program has changed over the years to improve data management and quality, as well as allow mobile data collection. The authors discuss how shifting program goals led to additional emphasis on data quality to report reliable program performance outcomes.

Sorensen et al. (this issue) focus on volunteer stewardship motivation. In particular, these authors analyzed public perception of and engagement with coastal restoration projects in Jamaica Bay, New York, New York, U.S., drawing upon interviews with park users where restoration plots were sighted. Motivations varied by neighborhood, suggesting highly localized stewardship identities. Not surprisingly, motivation also varied by conservation issue/need. These authors suggest that civic engagement in environmental stewardship can be mediated by tailored framing of needs and desired outcomes to the local community.

Likewise emphasizing community engagement, Barker et al. (this issue †) describe the use of citizen science in Oakville, Ontario, Canada. The program aimed to enhance public awareness concerning emergent pests and diseases in the town, and ultimately increase advocacy for the urban forest. Youth volunteers were central to the program, and the authors offer suggestions for youth recruitment and engagement.

de Guzman et al. (this issue †) analyze the use of community-based social marketing in order to spur resident engagement in street tree stewardship. Working in Huntington Park, Los Angeles, California, U.S., they used focus groups and door-to-door surveys to examine barriers and drivers of residential tree stewardship. They then compare the effectiveness of active, in-person outreach (i.e., speaking with residents and demonstrating tree care) and passive outreach (i.e., outreach materials left at doorstep), and found improved tree health and increased soil moisture at sites with active outreach as compared to both baseline conditions and passive outreach outcomes.

Taken together, the articles in this and the prior special issue indicate a substantial engagement of the field of urban forestry with civic science. Both practitioners and researchers are building new knowledge in this growing area of scholarship, particularly around ways to most effectively harness and amplify the interest, capacity, and care of urban trees by the public. Going forward, practitioners may want to consider their volunteer base more broadly both in terms of who is willing to engage and ways to specifically tailor engagement to the multiple identities that comprise urban communities. In addition, we recommend that data quality assessments be tailored specifically to project goals in an effort to ensure minimum levels of precision with maximal levels of engagement. Volunteer-based assessments can be powerful resources when they are integrated with the interests of community members and urban forest managers. We also echo the future needs for civic science research and practice that we previously identified in Roman et al. (2018): enabling data democratization through technological tools, identifying ways to engage marginalized and under-represented groups in civic science, and supporting transdisciplinary dialogue and collaborations across research and practice.

Acknowledgments. We repeat our deep appreciation to the following individuals, repeating our acknowledgements from Roman et al. (2018): "We thank all the presenters and participants at the May 2016 symposium, "Citizen Science & Urban Forestry: Research & Practice." We are especially grateful to the scholars and professionals who joined us after the symposium for a workshop to discuss new directions for citizen science in urban forestry: G. Abrams, D. Boyer, D. Dentice, A. DiSalvo, J. Henning, J. Greenfeld, S. Lerman, S. Low, M. Maslin, J. Sanders, P. Silva, and A, Sorensen. Our discussion of future research needs in this paper builds on that workshop. We also appreciate the sponsors of the symposium: the USDA Forest Service Philadelphia Field Station, the Pennsylvania Horticultural Society, and Azavea."

LITERATURE CITED

Almas, A., and T. Conway. 2018. Resident attitudes and actions towards native tree species: A case study of residents in four southern Ontario communities. Arboriculture & Urban Forestry 44:101–115.

Bancks, N., E.A. North, and G.R. Johnson. 2018. An analysis of agreement between volunteer- and researcher-collected urban tree inventory data. Arboriculture & Urban Forestry 44:73–86.

Crown, C.A., B.Z. Greer, D.M. Gift, and F.S. Watt. 2018. Every tree counts: Reflections on NYC's third volunteer street tree inventory. Arboriculture & Urban Forestry 44:49–58.

Hauer, R.J., N. Timilsina, J. Vogt, B.C. Fischer, Z. Wirtz, and W. Peterson. 2018. A volunteer and partnership baseline for municipal forestry activity in the United States. Arboriculture & Urban Forestry 44:87–100.

Johnson, M.L., L.K. Campbell, E.S. Svendsen, and P. Silva. 2018. Why count trees? Volunteer motivations and experiences with tree monitoring in New York City. Arboriculture & Urban Forestry 44:59–72.

Silvera Seamen, G. 2018. Grassroots citizen science in urban spontaneous vegetation. Arboriculture & Urban Forestry 44:116–128.

Roman, L.A., L.K. Campbell, and R.C. Jordan. 2018. Civic science in urban forestry: An introduction. Arboriculture & Urban Forestry 44:41–48.

Lara A. Roman (corresponding author)
USDA Forest Service
Philadelphia Field Station
100 N. 20th St., Suite 205
Philadelphia, Pennsylvania 19103, U.S.
lroman@fs.fed.us

Lindsay K. Campbell
USDA Forest Service
NYC Urban Field Station
431 Walter Reed Rd.
Bayside, New York 11359, U.S.

Rebecca C. Jordan
Community Sustainability
College of Agriculture and Natural Resources
Michigan State University
East Lansing, Michigan 48823, U.S.