Survey response

Candidate statements and CV/resume

Please enter your name and email address below. [First Name]
Lea

Please enter your name and email address below. [Last Name (Surname)]
Shanley

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What do you feel are the major concerns facing the citizen science community?
By harnessing the collective action of everyday Americans and online communities, citizen science, crowdsourcing, and similar participatory approaches have the potential to transform the way we do science, leading to new discoveries that would not have been possible otherwise. While citizen science has made great strides over the past two decades—garnering recognition by the White House and NSF Director, more work is needed to gain broader acceptance within the scientific community. Specifically, as a professional organization, we need to work to ensure the consistent reliability of citizen science, and to increase awareness of the good work that is being done. In addition, we—as a community of researchers, practitioners and volunteers—need to develop a vision for the field of citizen science. Where should the field be in the next 5, 10 or 20 years and how do we get there? To this end, the Citizen Science Association should engage the citizen science communities in a participatory visioning and strategic planning process, including town halls, listening sessions and online forums. The CSA will need to consider: • How do we move the field beyond data collection to enable volunteers to contribute to all stages of the scientific process—ideation, design, data collection, visualization, analysis, interpretation, problem-solving, and publication? • How do we expand CSA membership to include a broader range of scientific disciplines, including social science, and importantly, to include a wider diversity of participants? • How can the CSA foster the development and testing of new tools, such as low cost sensors and drones? How do we build capacity in local communities to use these tools and interpret the data? • How can data science approaches, such as machine learning and natural language processing, be combined with citizen science? • What shared data cyberinfrastructure and services will be needed to support open and collaborative citizen science research across multiple organizations? In addition, changing federal priorities will present difficult challenges, from reduced federal funding for research to reduced access to government data (particularly climate-related), from a rollback of environmental regulations to possible restrictions on volunteer monitoring efforts. The CSA—as a community—will need to strategically respond to these hurdles: • Should the CSA identify and develop partnerships to support strategic national initiatives, such as fostering a nationally coordinated volunteer water monitoring network, data infrastructure and shared standards? • Should the CSA work to unleash the power of everyday Americans to use citizen science to improve the environmental health and well-being of local communities? • Should citizen science play a role in regulatory enforcement and remediation? The CSA will need to strategically coordinate outreach efforts to local and state governments and build partnerships with the private sector to advance its m

What skills and what types of experience would you bring to the CSA board?
Dr. Lea Shanley spent fifteen years collaborating closely with rural and tribal communities in Wisconsin to assess the needs and develop GIS-based decision support systems for community-based participatory natural resource management and coastal resilience. From 2011 to 2014, Lea founded and directed the Commons Lab at the Washington-based Wilson Center, obtaining $2-million in funding from the Sloan Foundation and other sources, managing a team of staff, scholars, contractors and students, and directing strategic research on the scientific, legal and policy challenges of citizen science, crowdsourcing, and social media. As part of this effort, Lea founded and was the chief organizer for the Federal Community of Practice on Crowdsourcing and Citizen Science (CCS). In addition, she assisted grassroots crowdsourcing groups with strategic planning and 501c3 incorporation; initiated the Federal citizen science catalog in collaboration with the CCS, SciStarter and Cornell; and, as a member of the initial working group, and subsequently as a senior adviser to the steering committee, contributed to the launch of the Citizen Science Association. From 2014-2015, Lea served as a White House Presidential Innovation Fellow at NASA. In this capacity, Shanley developed the NASA ROSES Citizen Science Asteroid Data, Education and Tools (CADET) grant program, and contributed to the formulation of other agencies' grant opportunities for citizen science. As co-Chair of the CCS, Lea provided strategic direction and collaborated closely with the White House: (1) to mobilize 125 CCS members to build the Federal Citizen Science and Crowdsourcing Toolkit, which led to the launch of Citizenscience.gov; (2) to draft the White House memo titled "Addressing Societal and Scientific Challenges with Citizen Science and Crowdsourcing" and build citizen science into other policy documents; (3) to organize the White House's first Citizen Science Forum, titled "Open Science and Innovation: Of the People, By the People, For the People;" and (4) to provide multiple rounds of input and feedback on the Crowdsourcing and Citizen Science Act, which originated with a briefing Lea gave Senator Coons' Office in 2014, and which was incorporated into the American Innovation and Competitiveness Act of 2017. Lea also connected Jennifer Shirk of CSA and Darlene Cavalier of SciStarter with federal colleagues to initiate the nation's first Citizen Science Day. In 2015, Dr. Lea became the co-Executive Director of, helped to launch and set the strategic direction for the South Big Data Innovation Hub. The South Hub, one of four Hubs funded by the NSF, catalyzes and strengthens public-private partnerships to apply data science approaches (including crowdsourcing and citizen science) to regional challenges. Lea recently negotiated with Microsoft for an award of $750,000 in Azure compute credits, training, and technical support to benefit the South Hub research community.

University of North Carolina at Chapel Hill 2016 – Present

Co-EXECUTIVE DIRECTOR, SOUTH BIG DATA INNOVATION HUB (NSF sponsored)

Catalyzing and strengthening partnerships between academia, government, industry, and non-profits that apply data science to regional and national challenges, and building capacity through education and training. Focus on health and the environment, and Smart and connected communities.

- **Successfully negotiated for an award of $750,000 in Microsoft Azure compute credits, as well as training and technical support, on behalf of South Hub members.**
- **Co-led the design and implementation of the 2016 DataStart summer internship program**, pairing graduate students with startups to address business data science challenges.

NASA Office of the Chief Technologist, Washington, DC 2014 – 2015

WHITE HOUSE PRESIDENTIAL INNOVATION FELLOW

The highly competitive White House Presidential Innovation Fellows (PIF) program pairs senior-level top technologists from the private sector with change makers in government for focused 6-13 month "tours of duty."

- **Designed new NASA ROSES grant program to support the agile development and use of open source software by citizen scientists for light curve and phase curve analysis of asteroids**.
- **Chief organizer and co-Chair, Federal Community of Practice on Crowdsourcing and Citizen Science (CCS)**, providing overall vision, strategic direction and leadership. In collaboration with the White House:
  - **Co-managed the development of the online Federal Citizen Science Toolkit and CCS website, leading to the creation of Citizenscience.gov,** in collaboration with the White House and US EPA.
  - Co-organized the first **White House Citizen Science Forum "Open Science and Innovation: Of the People, By the People, For the People**," increasing visibility of citizen science, and strengthening teams to address challenges in oceans, coastal resilience, water, soil moisture, and bee conservation.
  - Ghost co-authored **White House memorandum** ***Addressing Societal and Scientific Challenges through Citizen Science and Crowdsourcing***, issued by John Holdren, and crowdsourcing sections of the 2015 *President's Strategy for American Innovation*, and 3rd *Open Government National Action Plan*.
  - Served as strategic advisor to White House on citizen science legislation that was initiated by Senator Coons' office in response to a briefing Dr. Shanley provided (Sept 2014); legislation incorporated into ***Section 402 of P.L. 114-329 American Innovation and Competitiveness Act*** (January 6, 2017).
- **Assessed stakeholder needs for climate data across the Federal climate data enterprise towards improving Data.gov service delivery,** and briefed President's Science Adviser and Chief Counsel.
- Identified strategic citizen science partnerships for NASA Globe Program and NASA's Soil Moisture Active Passive (SMAP) satellite mission team, expanding capacity for in situ volumetric and gravimetric soil measurements.

The Wilson Center, Washington, DC 2011 – 2014

FOUNDER AND DIRECTOR, COMMONS LAB

Founded and directed the Commons Lab, advancing research and policy analysis on citizen science, crowdsourcing, social media, and big data. Supervised 10 graduate students, program assistants, and contractors. Hosted 4 scholars.

- **Provided strategic planning and technical guidance, along with small grants, to volunteer groups** that combined social media curation and participatory mapping for disaster response and humanitarian relief.
- **Founded the Federal Community of Practice on Crowdsourcing and Citizen Science to share best practices.**
- **Initiated the Federal Citizen Science Project Database,** in collaboration with SciStarter and the CSA.
- **Collaborated with the USEPA to host an ideation challenge competition,** resulting in development of the Local Environmental Observer Network (LEO) Network mobile app for Native Alaskan villages.
- **Conceived, directed and/or co-authored 19 publications and led 23 roundtables identifying and prioritizing research challenges,** risk reduction and data quality assurance strategies for citizen science.

National Academies of Sciences, Engineering and Medicine, Washington, DC 2010

FELLOW, BOARD ON EARTH SCIENCE AND RESOURCES

Served as acting study director responsible for project management, budget, schedules, research and analysis, recommendation development, report preparation, and evaluation. Managed multi-national committees of up to 12 senior scientists. **Co-directed 2 NRC reports, including *Precise Geodetic Infrastructure,*** providing recommendations to achieve scientific objectives, including sea level rise monitoring, through space- and advanced technology.

Office of Senator Bill Nelson (FL), Washington, DC 2009

AAAS CONGRESSIONAL SCIENCE FELLOW

Primary Science Advisor to Senator, covering issues related to Earth science, weather and climate, marine sanctuaries, marine mammals, harmful algal blooms, corals, and disasters, and advising on the science, management, and funding of all civil Earth observation missions, including NPOESS (JPSS) and the Deep Space Climate Observatory (DSCOVR).

- I**n support of the Senator's priorities, positively influenced Presidential request for a $20 million increase in NOAA's budget for the Jason-3 mission for ocean surface topography**.
- **Co-authored and negotiated four pieces of legislation,** including Earth Science section of NASA Authorization Act (passed 2010) and Harmful Algal Blooms and Hypoxia Research and Control Amendments Act (passed 2014).

FUNDING

Microsoft Corporation ($750,000 in Azure Compute Credits, Tech Support and Training): South Big Data Hub, 2016-2018.
Alfred P. Sloan Foundation ($1,800,000 grant; $600,001 grant): Commons Lab, 2011-2015.
Computing Research Association (Co-PI: $111,000 award): A U.S. Research Roadmap for Human Computation, 2014.

RECENT LEADERSHIP

co-Founding Member, Senior Advisor to Steering Committee, 2012 – 2014. Citizen Science Association, 2013-Present.
Board of Advisors, *Cloud and the Crowd*, a NSF-sponsored, made-for-PBS TV series, 2013-Present.
User Working Group, Socioeconomic Data & Applications Center, Center for International Earth Science Information Network (CIESIN), Columbia University, 2017-Present.
Board of Advisors, Zooniverse, Adler Planetarium's international crowdsourced science platform, 2014-2015.

EDUCATION

Ph.D. in Environment and Resources (with focus on geospatial data science and remote sensing), UW-Madison.
Dissertation: *Spatial Data Sovereignty and Privacy in Indian Country. Departmental Award for Excellence in Teaching.*
B.S. in Physics, FSU. *Departmental Award for Excellence in Physics.*

SELECTED PUBLICATIONS

- Nascimento, S., Rubio-Iglesias, J.M., Herbst, C., Montani, E., Owen, R., Schade, S., and **Shanley, L.** (2017). Citizen Science as Input for Better Policy Formulation and Implementation. For inclusion in book titled "Citizen Science: Innovation in Open Science, Policy and Society." Berlin, Germany. In publication.
- McKinley, D.C., Miller-Rushing, A.J., …**Shanley, L.** et al. (2016) Citizen Science can improve conservation science, natural resource management, and environmental protection. Biological Conservation 208, 15-28.
- Gustetic, J., Honey, K., and **Shanley, L.** (2015). Open Science and Innovation: Of the People, By the People, For the People. White House OSTP Blog. Washington, D.C., September 9, 2015.
- Craglia, M. and **Shanley, L.** (2015). Data Democracy – Increased Supply of Geospatial Information and Expanded Participatory Processes in the Production of Data. *International Journal of Digital Earth*. 8:9, 679-693, DOI: 10.1080/17538947.2015.1008214.
- McKinley, D., Miller-Rushing, A., …**Shanley, L.** et al. (2015). Can Investing in Citizen Science Improve Natural Resource Management and Environmental Monitoring? Issues in Ecology, Fall 2015. Report Number 19.
- Michelucci, P., **Shanley, L.,** Dickenson, J., and Hirsh, H. (2015). A U.S. Research Roadmap for Human Computation. Washington, DC: CCC/Computing Research Association (NSF-sponsored).
- **Shanley, L**., Burns, R., Bastian, Z., Robson, E. (2013). Tweeting Up a Storm: The Promise and Perils of Crisis Mapping. Journal on Photogrammetric Engineering & Remote Sensing. October 2013.
- Bowser, A. and **Shanley, L**. (2013). New Visions in Citizen Science. Washington, DC: Wilson Center.
- Young, J., Wald, D., Earle, P., and **Shanley, L.** (2012). Transforming Earthquake Detection and Science Through Citizen Seismology. Washington, DC: Wilson Center.