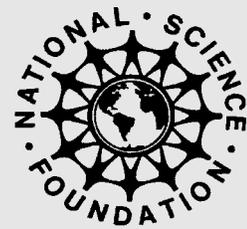


**Citizen Science
Toolkit Conference**

June 20 - 23, 2007

working group report outs



**CORNELL LAB of
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CORNELL LAB OF ORNITHOLOGY

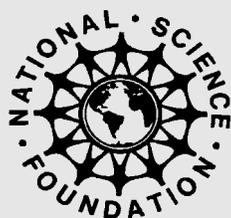
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These report-outs took place on day three of the Citizen Science Toolkit Conference at the Cornell Lab of Ornithology in Ithaca, New York, which was held June 20-23, 2007.

The following report outs represent informal presentations by working group members. They are not transcribed verbatim but have been paraphrased and/or edited for clarity.

Documentation of the conference is meant to serve as a resource for those who attended and for others in the field. It does not necessarily reflect the views of the Cornell Lab of Ornithology or individual symposium participants.



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Any opinions, findings, and conclusions or recommendations expressed in this documentation are those of the authors and do not necessarily reflect the views of the National Science Foundation.

The following report outs were delivered on day three at the conclusion of the conference. They summarize the discussions that took place in five separate breakout groups, which met periodically throughout the conference to focus on key Citizen Science themes and topics that emerged during conference presentations and plenary discussions.

For complete documentation of conference proceedings and to learn more about citizen science and the Citizen Science Toolkit, or to join the ongoing citizen science community, go to:

<http://www.citizenscience.org>

Working Group Report Outs

About the Conference Working Groups

Catherine McEver, The Bureau of Common Sense, Conference Documentarian

Throughout this three day conference, participants periodically separated into working groups to discuss questions related to the plenary presentation sessions. Those questions may be found at the start of each chapter in this document related to a conference session theme. Groups were assigned based on individual interest as well as by expertise. Because the conference conveners recognized the multidisciplinary nature of citizen science projects, as well as those who work with them, the expectation was that participants would employ their cross-disciplinary expertise to help keep broad interests in mind while working towards their working group's goals.

The intent of these working groups was to ensure that the needs and perspectives of various aspects of citizen science were fully explored in order to inform the framework of the Citizen Science Toolkit. White papers or working notes were produced by each group and continue as living, editable documents online that are expected to change and expand as we work towards finalizing the Citizen Science Toolkit. This conference documentation includes brief report outs from each of the working groups.

The Working Groups:

- Education
- Evaluation and Impact
- Community Building
- Technology and Cyberinfrastructure
- Research and Monitoring

The Report Out Task

Report outs from each group were to focus on three topics:

- A group revelation
- The most important recurring theme within the group
- A controversy that needs to be discussed or resolved to move the field forward

Working Group Papers

Synthesis papers based on working group discussions may be found at:

www.citizenscience.org

Working Group Participants

Education

Allee/Losey
Ayres
Bushway
Cunningham
DeBuhr
Dunckel
Lewis
McConnell
Pankratz
Pitkin
Prysbly
Remington
Vargo

Evaluation and Impact

Ellenbogen
Haley-Goldman
Henderson
Jordan
Litle
Maldini
Vaughan
Wilderman
Krasny

Community Building

Ely
Green
Gurton
LeBaron
McCrimmon
Miller
Morten
Penningroth
Raczko
Studer
Swarth
Treadwell
Tufts

Technology and Cyberinfrastructure

Carlson
Forman-Orth
Kirn
Knauer
Lemberg
Liebenberg
Michener
Peters
Stevenson
Witzel

Research and Monitoring

Baillie
Crimmins
Doesken
Droege
Hale
Marburger
Murray
Oberhauser
Pattengill-Semmens
Taylor

Research and Monitoring Group

Report out by Nolan Doesken, State Climatologist, Community Collaborative Rain, Hail and Snow Network, Colorado Climate Center, Colorado State University

I am delighted to represent a diverse group. I guess we could call ourselves cats because we were only marginally herdable. We were young, old, and in-between, but we were definitely dominated by a

The Charge to the Research and Monitoring Group

What are the characteristics of an ideal research or monitoring agenda for citizen science?

“ _____
 ...we became very concerned about the fate of our data, the quality of our data, the security of our data, the documentation of our data, and the ownership of the data en route to the research result, which from a research point of view is a significant question.
 _____ ”

“ _____
 ...if the focus is only education, then should it be “citizen science”?
 If the focus is only monitoring should it be “citizen science”? Does it have to be pure research to be “citizen science”?
 _____ ”

research perspective even though we had “monitoring” in our name as well.

Revelation

We had a group revelation that was never discussed until the last half-hour of our time together. We did not fully appreciate through all this just how valuable our data really are to us, because we became very concerned about the fate of our data, the quality of our data, the security of our data, the documentation of our data, and the ownership of the data en route to the research result, which from a research point of view is a significant question. It became in our minds a bigger deal than we had ever thought about as we ventured into the first couple of days of the workshop.

Recurring Theme

We didn’t have to be herded too much while discussing the following recurring themes. These are items that we really embraced. The first is the fact that we really believe there is an extremely important role for the scientists as participants in citizen science. We also believe project design needs to be placed at a very high level of importance if there are going to be research successes in citizen science. We also want to charge the scientists with the responsibility of making sure that not only are the results of the activity communicated through scientific journals and peer review, but also directly to participants and to a broader public, and that this is done in a very timely fashion.

Controversy

In terms of a topic of controversy, we did get into a discussion of the term “citizen science.” The feeling was, here we are at the end of the workshop and we are still, as a group, not feeling comfortable about “citizen science.”

I know personally why I have some discomfort with the term, even though I’ve embraced it in many ways and I think citizens really like it as well. But if you have somebody come up and say they can’t participate because they’re not a citizen, then the “citizen” part of the term is being interpreted to mean a citizen of the U.S.

Maybe it’s the scientists in us that says we should debate that, I don’t know. But if the focus is only education, then should it be “citizen science”? If the focus is only monitoring should it be “citizen science”? Does it have to be pure research to be “citizen science”?

Can we elevate volunteers to be more than volunteer monitors? Is it just being volunteer monitors? And indeed, you know the spectrum. There are many who are happy to be volunteer monitors. There are some who never thought of it whose encounter with us will lead them or their children or their neighbor into being scientists. So it is a

tiered system, there is a continuum, and we will elevate some no matter how we define it. By pursuing citizen science, involving the scientists in the process, we will elevate some new folks to being science leaders, scientists, and community science cheerleaders.

Community Building Group

Report out by Geoff LeBaron, Director, Christmas Bird Count, National Audubon Society

We spent the last few minutes of our time together trying to come up with a few sound bites for each of the topics below, and here they are.

Revelations

- A lot of programs and resources already exist, so we basically need to make sure that we are becoming a resource toolkit and not just a toolkit.
- The big bell that went off in our heads is that we really need some social science expertise when we are starting to think about citizen science.
- The last revelation is also a recurring theme: Citizen science means different things to different audiences.

Recurring Themes

- The first and perhaps the one that came up most frequently: Community, what is it?
- What also kept coming up in almost any part of our discussions is that you have to be aware of scaling issues in whatever we do, from small scale to large scale and all of the continuum in-between.
- For the toolkit, first and foremost, we need to make sure that we have a glossary included (e.g., "What is 'community'?").
- A "project marketplace" was proposed as a way of soliciting new input and new potential projects right through the online toolkit.
- Volunteer management tools was another recurring theme in terms of the toolkit, and we almost thought we should be renaming the whole Citizen Science Toolkit.

Controversy

- Does citizen science need scientists?
- Do the terms "citizen science" or "toolkit" need to be changed?

The Charge to the Community Building Group

What materials can help build and sustain critical relationships necessary for effective citizen science?

“ _____
...we really need some social science expertise when we are starting to think about citizen science.
_____ ”

“ _____
Does citizen science need scientists?
_____ ”

The Charge to the Technology and Cyberinfrastructure Group:

What opportunities exist for innovation, and how can the Toolkit remain current?

“ This Public Science Corps would provide implementation leadership, and the first task of this group would be to crystallize what we refer to as a “community of practice” ... ”

The Charge to the Evaluation Group:

What diverse outcomes and impacts should be considered in designing Toolkit evaluation materials? How can they be measured?

Technology and Cyberinfrastructure Group

Report out by Sarah Kirn, Vital Signs Program Manager, Vital Signs, Gulf of Maine Research Institute

I’ve had the most interesting conversations in the last three days that I’ve had in any consecutive three working days. In the Technology and Cyberinfrastructure Group we kind of went off in our own direction a little bit. As with the Community Building Group, one of our revelations was that the resources already exist, and like the Research Group we had some concerns about data issues.

But a larger issue is that we noticed that everyone here is here out of a concern or desire to scale their program up. We either want more capacity, more participation, larger reach, or more funding. We want to scale things up and we can’t do that now, and that is why this conference was organized.

What we propose as a way to make this happen and make it possible for all of us to scale up our projects is that a body be created. We came up with the name “Public Science Corps.” We thought about every one of those words and would be happy to explain them if anyone is interested. This Public Science Corps would provide implementation leadership, and the first task of this group would be to crystallize what we refer to as a “community of practice,” which includes all of us in this room—people who are involved in or collaborating with citizen science projects in every way.

The Public Science Corps would crystallize this community of practice to present a common face to both public and private funders, to the public at large, and to government, which would include management and policy impact. Some of the other things this body would do would be to manage, develop, provide and facilitate a series of common assets such as technology tools, legal tools, evaluation tools, administrative tools, data management tools, funding strategies and sources, etc.

Evaluation Group

Report out by Rebecca Jordan, Assistant Professor of Citizen Science and Environmental Education, Volunteer Trail Monitoring for Invasive Plants, Rutgers University Department of Ecology, Evolution, and Natural Resources

I’m going to echo a lot of what has already been said, and probably that is not very surprising.

Making the Toolkit Useful

The first question we addressed was, what do we want to get out of this? What would be the most valuable aspect of this toolkit? We came up with three responses:

- The toolkit needs to be flexible in terms of the diversity of projects,

in terms of users' areas of expertise, in terms of the time users are willing to spend, and in terms of their goals, audiences and partners. We want the toolkit to be flexible to meet the needs of diverse groups.

- We thought this should be dynamic in terms of evolving and growing and in terms of it being participatory.
- We agree with what was said by the Community Building group: With respect to the toolkit, we want to build on what already exists. There is really no reason to reinvent the wheel.

Recurring Theme

Evaluation is always dependent on your goals. This came up again and again in every one of our discussions. Project effectiveness needs to be measured in terms of your goals. This can be especially hard to deal with when you are thinking about practitioners who want ready-made programs. There is no real one-stop shopping or cookie-cutter evaluation tools. We need to find a way to accommodate the needs of these different people, making it manageable but stressing the fact that there really is no ready-made kit that we can just hand to them.

Revelations

We found that people are coming at this from such broad, diverse perspectives beyond the scope of what any of us originally thought when we first came together a couple of days ago. But we also found that there are cross-disciplinary concepts that we all have in common. While there are jargon differences, we need to find a way to speak a common language, and this holds true not just for evaluation but for every aspect of citizen science.

We also realize that effectiveness in science as a practice may not necessarily be intuitive for scientists, but that this evaluation of effectiveness really needs to be part of the process and part of project planning from the very beginning and throughout.

Controversy

For our controversial topic (as you might guess given the previous presentations) we talked about the term "citizen science." First of all, we did discuss much of what the Research Group discussed in terms of volunteers being scientists, monitors, technicians. Overall, though, we also discussed whether we need the "science" in "citizen science." Is it important for scholarship and credibility and funding, or is it simply promoting exclusivity?

Beyond this, how can we deal with defining citizen science as a field or a discipline? Where are the common elements of all of these projects? Or is it okay to say that these are different elements that might exist in differing degrees in different projects?

“ Evaluation is always dependent on your goals....There is no real one-stop shopping or cookie-cutter evaluation tools.

“ ...how can we deal with defining citizen science as a field or a discipline? Where are the common elements of all of these projects?

Another discussion that came up again and again was the degree of standardization. Again, while this question may relate to all aspects of citizen science, it is particularly relevant for evaluation: Can we standardize in terms of metrics or instruments? And again, our group was across the board regarding the extent to which we thought standardization was possible.

Education Group

Report out by Maureen McConnell, Senior Exhibit Developer, Boston Museum of Science

The Charge to the Education Group:

Given diverse educational goals (from inquiry to literacy), how can supportive resources be created and/or compiled?

Citizens put the Zen in Citizen Science

revelations
caring citizens
many projects and models
it's really a web

recurring themes
working together
demystifying science
keep an end in mind

controversy
beyond NSF
who determines the model?
all are scientists?

Kudos to Lab Staff

It was only shortly before the conference that our staff at the Lab knew that they were going to devote three days of their time to this conference helping to facilitate these working groups, and I would like to express a huge thank you to them for their efforts and their enthusiasm:

- Education - Colleen McLinn, Mike Powers;
- Evaluation and Impact - Tina Phillips, Jen Schaus;
- Community Building - David Bonter, Flisa Stevenson;
- Technology and Cyberinfrastructure - Paul Allen, Jeff Gerbracht, Roger Slothower, Chris Marx;
- Research and Monitoring - Caren Cooper, Kitty Gifford.

I would also like to thank the PI staff who saw the necessity of allowing the staff to take the time to do this. So to Janis Dickinson, Steve Kelling, Jason Mobley, and Ken Rosenberg, thank you for allowing this to happen and for guiding this process as it happened. And a huge thank you to Rick Bonney for having this vision to work towards . - Jennifer Shirk, Project Leader, Citizen Science Toolkit Project, Cornell Lab of Ornithology