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BioBlitzes help science communicators engage local communities in environmental research

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Abstract

There is growing recognition that effective science communication should not merely focus on addressing scientific literacy but must also open dialogue between scientists and the public, build trust, and increase public interest in environmental research. Citizen science BioBlitzes offer a useful approach for science communicators to address many of these key aims. We explore the BioBlitz concept, learnings and outcomes based on a case study of a BioBlitz held in Sydney, Australia. We found that participants valued learning about biodiversity on the day and importantly, all participants (scientists and citizen scientists) rated interacting and learning from the experience as one of the main benefits.

Keywords

Citizen science; Environmental communication; Public understanding of science and technology

Context

Citizen science or work that involves networks of non-scientists who help to analyse or collect data as part of a researcher-led project, [Gura, 2013] is not a new concept. However, citizen science has grown rapidly over the past decade with a large body of research now demonstrating its important role in advancing scientific knowledge and increasing public engagement in science [Silvertown, 2009]. Globally, citizen scientists now participate in a range of areas including: projects on climate change, invasive species, conservation biology, ecological restoration, water quality monitoring, and population ecology [Bonney et al., 2009]. Many factors such as available and affordable technologies have been attributed to the rapid growth in citizen science, resulting in the general public having greater accessibility and greater involvement or investment in projects through participation in scientific research [Roy et al., 2012; Laut et al., 2015].

A BioBlitz is an intense period of biological surveying that is designed to be a collaborative effort to discover and record as many of the living species (plants, animals, algae, fungi) within a designated area, over a defined period of time [Robinson et al., 2013]. The term 'BioBlitz' literally means to discover life quickly [Robinson et al., 2013]. A BioBlitz is usually comprised of a group of scientists, naturalists and interested community members that work together in an intensive field study. It is these two facets of BioBlitzes (public participation and scientific research) that categorise BioBlitzes as citizen science, and it is the mixture of experts and the wider public that is key to the concept of a BioBlitz.

The first event coined a 'BioBlitz' was developed in the United States in 1996 [Robinson et al., 2013] and the concept has since grown in popularity with many BioBlitzes now being held annually in a number of countries [Leong and Kyle, 2014]. Biologist, E.O. Wilson helped mainstream the concept by suggesting in 1999 that citizen scientists join the effort and work alongside experts in intensive surveying [Ontario BioBlitz, 2015]. A BioBlitz can occur anywhere there are species that can be recorded, including urban and rural areas and have now been held frequently across Canada, United States and the United Kingdom. Successful BioBlitzes have also been held (for example) in New Zealand, Australia, Portugal, Taiwan and Trinidad and Tobago [Ontario BioBlitz, 2015].

The primary focus of a BioBlitz is to participate in environmental research and have a recognised and documented role in contributing to scientific research [Leong and Kyle, 2014; Ontario BioBlitz, 2015]. Importantly, they create a snapshot of the variety of life that can be found in an area. BioBlitzes have the capacity to identify species of interest for a particular area and new species previously not recorded locally. BioBlitzes are not complete biological surveys, but they have facilitated the discovery of new species, the rediscovery of rare species and the identification of species in locations where they were not thought to occur [Hepburn et al., 2015]. Species records can be used to assist future research into species' distributions and help inform conservation practice and local planning and land management. BioBlitzes will have an important role in helping scientists track environmental change and contribute local-scale information that can be used for global scale analysis [Ontario BioBlitz, 2015]. The scientific element of the BioBlitz is crucial for motivating the public to participate in this citizen science activity. This requirement is supported by Laut et al. who found that citizen scientists are (at least in part) motivated by wanting to help advance science, even if it comes at a cost of increasing time spent on an activity [Laut et al., 2015].

While the gain in scientific information is invaluable from a science aspect, BioBlitzes are also recognised for their value in engaging the public in science and allowing them an insight into scientific research [Leong and Kyle, 2014; Eaton, 2014]. Effective science communications are thought to inform people about the benefits, risks and other costs to their decisions by involving the public in science [Fischhoff, 2013]. Communicating science also affords people a shared understanding of the facts and done effectively it should result in a broad understanding of the science that helps to empower the community in decision-making [Fischhoff, 2013]. BioBlitzes, by engaging with local communities on their own 'patch' can lower barriers to engagement with nature and science and build support for local conservation activities [Hepburn et al., 2015]. This can in turn help place BioBlitz events within a broader context, for example, helping to communicate costs and benefits of governmental expenditures on science [Treise and Weigold, 2002].

However, it is possible that BioBlitzes also represent a tool for science communicators to move beyond the traditional one-way public engagement model. This is supported by recent research from the United States which found that BioBlitzes are a means to open dialogue between the public and scientists [Leong and Kyle, 2014]. For the last 60 years the dominant paradigm of science communication has been around 'informing' the public and filling 'deficits' in public knowledge about science through the transfer of knowledge from one

subject or group to another [Bucchi and Trench, 2014]. This was highlighted in an article in the online academic media outlet the *Conversation* where the author commented "Science engagement in Australia is trapped in the 20th Century. It operates under an outdated model that aims to promote and celebrate science, rather than encouraging the public to participate in, and critically evaluate, scientific endeavours" [Metcalfe, 2013]. This article is supported by a national audit (funded by the Australian Government's Inspiring Australia program) of 411 science engagement activities held in Australia between 2011 and 2013. The audit found that 60% of these activities were designed around a one-way engagement 'deficit-model' with the public learning through a mix of watching, listening and viewing [Inspiring Australia, 2010]. Conversely, only 12% of activities in this report involved the public generating or imparting their knowledge [Inspiring Australia, 2010].

Despite this reality, science communication scholars suggest there is a global shift away from 'education of a scientifically illiterate public' towards the public understanding of science as a dialogue and a two-way process where 'lay people have knowledge and competencies which enhance and complete those of scientists and specialists' [Bucchi and Trench, 2014]. This idea has been extended by an additional participation model also termed knowledge co-production, in which non-experts and their local knowledge are considered as essential for the production of knowledge itself [Bucchi and Trench, 2014]. Callon et al. describe this as expert and lay knowledge produced by 'hybrid forums' [Bucchi and Trench, 2014]. Adopting knowledge co-production has been suggested as a way to guarantee 'the generation and maintenance of public trust' [Edmondston, Dawson and Schibeci, 2010].

We use the World Parks Congress BioBlitz (WPC BioBlitz) as a case study to evaluate how effective BioBlitzes are at fulfilling the social objectives of science communication. We use participant evaluations (both citizen scientists and the professional scientists) and communication outreach statistics to evaluate how effective the event was at reaching a wide audience, opening dialogue between scientists and the general public and in increasing scientific understanding. We further explore the role of BioBlitzes in facilitating two-way engagement and use evidence from other BioBlitzes to support our conclusions.

Case study of a BioBlitz event

The WPC BioBlitz was held on November 16, 2014 as part of the World Parks Congress Public Festival "Planetfest" at Sydney Olympic Park, Sydney New South Wales Australia. Sydney Olympic Park (260 hectares) is located in western Sydney and was once a former industrial area. Presently, 175 hectares is reserved as green space and includes parklands inhabited by threatened species, marine vegetation and salt marsh habitat. For citizen scientists the primary mode of participating in the event was through guided expert-led surveys. The aims of the BioBlitz were to introduce the concept of a BioBlitz to a global audience, gather scientific data for the Sydney Olympic Park Authority and trial the concept of a BioBlitz as a public engagement tool for science communicators.

Methods

Data collection

On-site survey data were collected from participants over the course of the event (10-hour period). The participant survey was located in the Basecamp marquee and researchers were stationed both within the marquee and at the registration tent to encourage participation. Every second participant was approached to participate in the on-site survey Appendix A. Participants were also given the option of emailing in their survey response if they did not have enough time to complete the survey on-site. The survey questions were divided into four sections that related to 1) how they heard about the event (open text), 2) overall enjoyment in participating (likert scale where 1=poor and 5=excellent), 3) their sense of involvement in the research (likert scale where 1=poor and 5=excellent), and 4) what they enjoyed most in the day (categorical/open text). Descriptive answers were categorised in order to look for common themes.

We evaluated the experience of the volunteer expert scientists post event using an online survey (Appendix B) application (SurveyMonkey®). Participants received an email with the survey link attached. Reminders and follow-ups were sent to encourage as many respondents as possible. The survey questions were divided into four sections that related to 1) the nature of their employment (open text), 2) event organisation (open text), 3) the importance of a BioBlitz in contributing to science and engagement (likert scale where 1=poor and 5=extremely important), and 4) personal enjoyment from participating in the event (yes/no and open text field).

In order to evaluate how well we were able to communicate the event in terms of science outreach, we generated statistics using the software package TweetReach. TweetReach measures the impressions and the accounts reached through the social media site. We fed the terms into the software and condensed the information into a report summarising the communication outreach (Appendix D). For other outreach statistics we accessed the analytics on each social media platform associated with the BioBlitz.

Data analysis

Completed and usable survey data were entered into Excel. We calculated descriptive statistics to estimate mean values (i.e.) averages and standard errors and created figures for selected variables to guide interpretation of the study finding. For the questions where a text response was required as opposed to a numerical number we categorised responses according to theme in order to look at patterns in responses.

Results

We received 40 completed surveys from BioBlitz participants, from a possible $n = 250$ citizen scientists and 13 completed surveys from BioBlitz scientist volunteers $n = 20$. All citizen scientists rated their overall experience from the day highly ($M4.5$, $SD = 0.51$) (Figure 1).

Similarly, participants ranked their personal involvement in the research highly ($M4.4$, $SD = 0.98$) (Figure 2). When asked about what they most enjoyed about the day 12 respondents rated the interaction with scientists as the best part (Table 1).

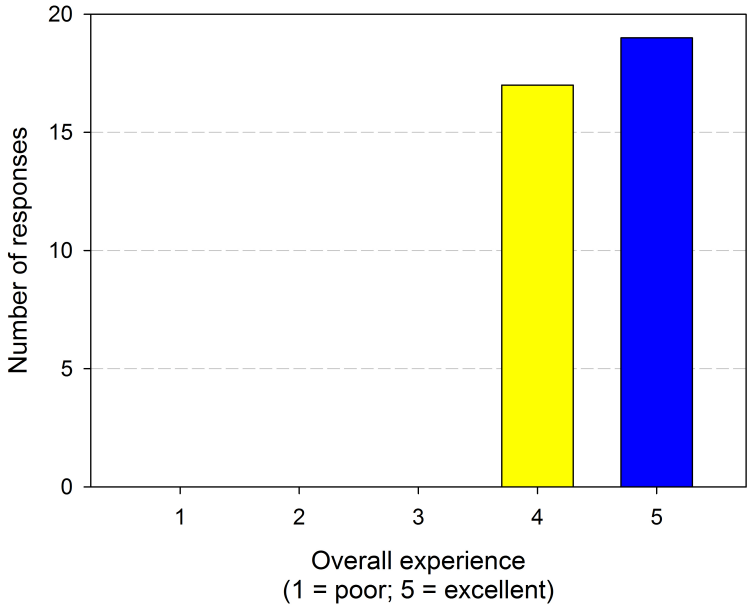

Figure 1. Rating of overall experience in participating in the BioBlitz plotted against number of responses to the question.

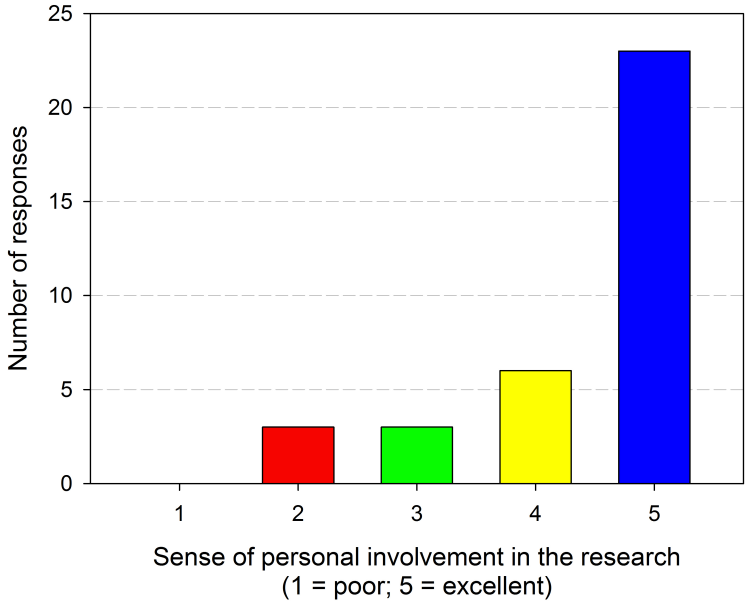

Figure 2. Sense of personal involvement in research during the BioBlitz plotted against number of responses to the question.

While 19 respondents thought that seeing and being in nature was the best part of the experience (Table 1).

Volunteer scientists rated the importance of BioBlitzes for science communication and learning as very important (M4.8, $SD = 0.38$) but less important in terms of scientific value (M4.3, $SD = 0.62$). When volunteer scientists were asked about the best part about the day, three listed being in nature and 12 listed learning and interacting with the community (Table 2). Two participants checked both boxes which accounts for the additional sample size.

Table 1. Free text responses of citizen scientists when asked to list the best thing about the experience grouped into the two main thematic categories.

Responses	**Interacting and learning from the scientists**	**Learning about nature**
Watching birds		X
Interacting with experts	X	
Observing		X
Looking at birds through the telescope		X
Learning from knowledgeable scientists	X	
The expert guides	X	
The Wildlife habitats		X
Interacting	X	
Connecting with the scientists	X	
Knowledge of the scientists	X	
Finding different birds and counting them		X
Finding species and networking	X	X
Walking and enjoying nature		X
Collecting and searching for specimens		X
Hands-on		X
Sorting and trying to identify insects		X
Crabs		X
Beautiful walk through the mangroves		X
Interacting with the community	X	
Knowledge of the scientists	X	
Connecting with the scientists	X	
Looking at bugs		X
Everything	X	X
Showed me about nature		X
Biodiversity		X
Learning from knowledgeable scientists		X
Finding new species		X
Meeting the scientists	X	
Great fun	-	-
Bird spotting and identifying		X
Total	12	19

Eleven partnerships were formed, including with both national and international partners who contributed in-kind and financial support. Partners in the WPC BioBlitz included: National Geographic Society, Parks Canada, Canadian Museum of Nature, Royal Ontario Museum, iNaturalist, Australian Museum, Royal Botanic Gardens, Taronga Zoo, Sydney Olympic Park, Living Data and Science in Nature Services. Ben Britton from 'Nat Geo Wild' was the event ambassador who promoted the event prior to and on the day.

The event was published on partner websites, newsletters (e.g. Sustainable Schools; Inspiring Australia), Facebook and Twitter. In addition, the event was promoted through Foxtel on the National Geographic Channel. Overall, the event was promoted on over 20 websites and posted on over 10 Facebook group pages. The #WPC BIOBLITZ was tweeted over 74 times with over 114 retweets and 65

Table 2. Free text responses of volunteer scientists when asked to list the best thing about the experience grouped into the two main thematic categories.

Responses	**Interacting and learning from the community**	**Being in nature**
Hands on fieldwork and learning of the potential value of citizen science	X	X
Getting the community especially kids interested in animals and conservation	X	
Community engagement	X	
Learn about new way of engaging the community in science	X	
Learning about the flora and fauna in Sydney Olympic park, learning about BioBlitzes	X	X
Interact with scientists outside my own field; learning something new by engaging with the public	X	
Experience with citizen science field application	X	
Fieldwork		X
Educating community members on birds	X	
Visual and verbal responses to the experience of field work	X	
Engaging people in birdwatching/nature conservation	X	
I love teaching, especially when people show interest	X	
Fun and ecological connections and learning	X	
Total	12	3

favourites (See Appendix D for a summary of social media outreach). The YouTube television commercial had over 300 views with the television ad given 419 spots across 18 channels over 12 days reaching 24.53% of total potential Foxtel subscribers (approximately 2.7 million Australians). 311 spots also ran across National Geographic, Nat Geo Wild and Nat Geo People with a reach of 668,700 people. The event was also advertised in a local Sydney Paper (Inner West Courier) with an estimated readership of 87,000. A communication kit was developed specifically for the event and emailed to over 50 contacts asking them to distribute across their networks. The 'Eventbrite' registration page had 1,800 total views over a four week period, and the dedicated event page had 1,700 unique views over four months. The BioBlitz was also marketed at the World Parks Congress itself with a dedicated BioBlitz stall on the preceding day (November 15th 2014) with an estimated reach of 100 congress participants.

Discussion

Opening dialogue — learning from each other

The greatest learning opportunity for the citizen scientists were the guided surveys where participants could walk and listen to expert scientists and participate in environmental research. Working alongside experts also offered knowledge and understanding about scientific survey methodologies. Over surveys and time,

participants gained greater skills and understanding of the scientific approach and what scientists can understand from such activities (Figure 2). This is reflected by survey respondents listing the interaction and learning from scientists as what they enjoyed most (Table 1). All citizen scientists, except two (who conducted self-guided tours) opted to partake in the guided surveys, offering further evidence that people valued the opportunity to learn and interact with experts. However, the level of interaction with experts seemed to be important for individual enjoyment. One participant pointed out the use of jargon and technical terms as something that should try to be avoided. Clearly the value of the interaction with the scientific expert hinges on their ability to communicate with the public at an appropriate level.

The expert scientists also listed 'learning' as one of the main benefits of participating in the event (Table 2). The expert led surveys allowed for interaction between scientists and the general community with both groups benefiting. Many expert survey leaders commented on the value of not only working and learning from other scientists but also how rewarding the interaction was with the general public. One respondent commented "It wasn't just about cataloguing species but getting the community to help out and get interested in what was around them. There were so many people that were simply fascinated by what we were doing and quite a few kids who were really excited and interested in what we had to show and teach them. Even the adults were really quite involved and you could see them talking and thinking about knowledge we were sharing". Experts also commented on how the BioBlitz provided an opportunity to hone science communication skills and more importantly provide an opportunity to engage directly and learn from the public.

The Inspiring Australia audit [Inspiring Australia, 2010] of science engagement activities highlighted that most science communicators do favour two-way participatory approaches to science engagement, but they often felt hindered by a lack of resources and organisational support for such engagement. Similarly, Cormick et al. [2015] found (based on a series of workshops on impediments and solutions to best practice in science communication in Australia) that there was a clear desire for more best-practice adoption. This was evident from the numerous recommendations for more best-practice guides and models to be developed. We argue that BioBlitzes offer a tool for science communicators to engage in a new two-way participatory model. Both scientists and participants (Tables 1 and 2) highlighted learning and interacting with each other as a primary benefit from participating in the day. Therefore, using BioBlitzes as a tool that aim to build trust in science and open dialogue and debate about science should be considered by communicators wanting to better adapt this two-way participatory approach.

4.1 Increasing scientific literacy

We found that BioBlitzes could also help to build support for environmental science through increasing scientific literature and may even encourage the behaviour changes amongst participants. Citizen scientists listed learning about science and nature as the best thing about participating in the event (Table 1). Many of the surveyed participants (n=12) expressed an interest in returning to the site for a follow-up survey. One participant had the following feedback about the WPC

BioBlitz "I enjoyed participating in the BioBlitz very much. In fact, it was one of the factors contributing to my decision to enrol in a Masters in Wildlife Health and Population Management, starting this year. Hopefully, I can get involved in more events like this in the future!" This comment demonstrates that BioBlitzes have the potential to invigorate an interest in the environment and can have flow-on positive impacts outside the individual. In fact, 24 of the citizen scientists said participating in the BioBlitz changed their perception of science and the natural world. A sample of responses from those that agreed with the statement said: "Much more found than expected", "Always had an interest but made me want to be more proactive", "It showed me about nature", "It made me realise how much people are willing and wanting to learn".

BioBlitzes can also provide an opportunity to reframe issues about species conservation within a new narrative about community risks and connections. Simply familiarising the public with species does not necessarily foster scientific understanding of the environment [Kim, 2014]. This makes the BioBlitz model all the more crucial which can offer participants knowledge in context. This context can assist in allowing participants to process their learnings because it is presented in a variety of ways through a range of media. This mixture is more likely to result in the goal of fostering scientific understanding in biological content [Kim, 2014]. Knowledge in context highlights the gradual move from a goal of 'public understanding of science' to 'public engagement with science'. This shift in public understanding of science was recongised by Bandelli and Konijn [2013] who acknowledged that as a result there is a much stronger integration between science, governance and the public today than previously.

Further evidence of how BioBlitzes can involve the public in science can be found from a BioBlitz that was held in 2014 in Bermagui New South Wales Australia [Hepburn et al., 2015]. A school student found a dead juvenile fish on one of the surveys and none of the experts could easily identify it. The sample was sent to an expert in Tokyo Japan and was subsequently identified as an eel. The eel had not previously been recorded in that area and the school student who found the eel remained engaged and interested throughout the identification process, describing the BioBlitz event as the 'The best day ever at school' [Hepburn et al., 2015]. It is also likely that the finding may officially change the accepted range of the eel's distribution which could have policy implications as a result.

The public interest in the environment and science was captured by the WPC BioBlitzes' artistic partner 'Living Data' who are interested in the human relationship with nature. Living Data asked WPC BioBlitz participants to record their BioBlitz experience using art.[1] Living Data noted on their website that the drawings the participants made reveal that "there's a lot of feeling in the drawings. This shows that we know more than just by name, date and location. We know how [living things] feel to us. That's what makes the experience memorable, specially [sic] when we have a chance to express the experience through drawing". Participants drew a range of organisms and habitats from insects to different habitats explored during the BioBlitz depicting the far reaching nature of the activity (Refer to Appendix C for a list of species recorded on the day). The interest of the general community in scientific learning and discovery is supported by

[1] http://www.livedata.net.au/content/wordpress/?p=12404.

findings from Laut et al. [2015] who found that participants were choosing to repeat tasks within set exercises that had a citizen science component. Laut et al. [2015] were able to demonstrate that building in this citizen science learning component was a strong motivation for participants to complete tasks.

4.2 Communication outreach

BioBlitzes also offer science communicators an opportunity to increase public interest and recognition of an organisation's science research. This positive opportunity for community engagement is reflected on how highly the WPC BioBlitz event was rated amongst citizen scientists (Figure 1). Most participants (95%) who filled out an evaluation form for the WPC BioBlitz were happy to be contacted for future events. This event is first step in establishing a pool of engaged interested individuals in science. Engaging the public in science can be particularly challenging in large cities. For example, research conducted by the Office of Environment and Heritage found that, despite varied concerns about complex global environmental problems, people place more value on the quality of the environment in which they live [Who cares about the Environment?, 2012]. Often in large cities such as Sydney (with a population of over 4.8 million) it can be a challenge to get commitment to participate in events and therefore build a sense of local community. BioBlitz events offer this opportunity to build support for local conservation activities. It is important, however, to consider the environmental issues that are important to the local community when designing BioBlitz events to maximise engagement and create linkages to the issues they are most concerned about.

BioBlitzes are often used to raise the profile of participating organisations. They can help organisations to meet their aims, and may generate financial support either directly through membership recruitment, donations and visitor spending, or indirectly through leveraging future public and corporate funding [Robinson et al., 2013]. By working as part of a consortium, smaller organisations can work with far larger numbers of people than their budgets would normally allow. These partnership opportunities can also create a platform for collaboration and a network of interested and engaged individuals and organisations who may be willing to be involved in future projects and research opportunities. Linkages between participating institutes were also observed - benefiting future collaborations. The results, outcomes and lessons learned from this specific BioBlitz will also inform any future events to a greater degree.

The WPC BioBlitz provided a number of post-event opportunities to communicate results from the day. For example, National Geographic produced a three minute video highlighting the event. This video is available on partner websites[2] and YouTube and can be shared between organisations to promote BioBlitzes more broadly. Participants (both members of the public and expert volunteers) were also notified about the video and it serves to provide feedback about how valuable their participation on the day was. National Geographic as well as photographers from other partner organisations were also onsite during the day and partners can access the images and use them for promotional purposes for future events or broader communications about citizen science. Furthermore, opportunities can often arise to follow BioBlitz events with presentations, newsletter stories and website updates

[2] http://www.environment.nsw.gov.au/research/bioblitz.htm.

across a number of forums. Partner organisations for the WPC BioBlitz have also blogged about their involvement in the day.[3] Excellent resources to assist in delivering BioBlitz events have been developed across Europe [Robinson et al., 2013], Canada [Ontario BioBlitz, 2015] and most recently Australia [Hepburn et al., 2015]. The WPC BioBlitz is featured within the Australian guidelines.

BioBlitz events are also thought to lower barriers to engagement with nature, particularly for 'hard to reach groups' such as children and young people, the elderly, disability groups, Indigenous and Minority Ethnic groups and those living in areas of high deprivation [Robinson et al., 2013]. If targeted well, BioBlitzes can bring together diverse groups of people from a community, which could contribute to improved community cohesion in the longer term. Although we did not collect any demographic information on WPC BioBlitz participants, the event did attract people throughout Sydney (including many from the local area) as well as nationally and internationally. Similarly, science festivals have also been found to offer opportunities for engaging more diverse audiences than is possible through other forms of science engagement [Bultitude, 2014].

Conclusions

We used a case study of the World Parks Congress BioBlitz to demonstrate the value of BioBlitzes as a science communication tool. BioBlitzes allow for communication across a diversity of media platforms and audiences; offer the chance to increase scientific literacy and learning opportunities for both expert scientists and the general public. We argue that BioBlitzes can allow transfer of information to the public and also create opportunities to open dialogue between scientists and the public and enhance the public's participation in science through the co-production of science knowledge. This open dialogue also serves to improve relationships and build trust.

[3] http://sydneyscb.org/2014/11/21/bioblitzing-in-sydney-olympic-park/.

Appendix A. The survey filled out by BioBlitz citizen scientists (general public) at the event

Table 3. Survey filled out by BioBlitz citizen scientists (general public) at the event.

Participant information	*Sex (Male/Female)*	*Age:* under 10 10-19 20-29 30-39 40-49 50-59 60-69 70+ *(please circle one)*
	City	*email*
	How did you hear about the WPC BioBlitz? (friend or family, tv/newspaper ad, OEH website, newsletter, event listing, congress newsletter, other- please specify)	
World Park Congress BioBlitz experience	*Please rank 1=very poor 5=excellent (circle)*	*Overall experience* **1 2 3 4 5** *Sense of personal involvement in the research* **1 2 3 4 5**
	Bioblitzes are new to Australia. Would you get involved in another BioBlitz? (if yes, where would you like another BioBlitz to occur?)	
	How many surveys did you partake in? If more than one, which was your favourite?	
	Did participating in the BioBlitz change your perception of science and/ or the natural world?	
	What did you enjoy most:	
	Can we contact you in the future to follow up your BioBlitz experience? YES / NO *Additional comments?*	

Appendix B. The post-event online survey filled out by BioBlitz volunteer expert scientists

Table 4. Post-event online survey filled out by BioBlitz volunteer expert scientists.

1	How many hours of your time did you give to the Bioblitz?	
2	Did you find your work satisfying?	Yes No
3	What kind of work did you do?	
4	What worked particularly well for you	
5	Do you feel your contribution was appreciated?	Yes No
6	Were you given sufficient information for what you were asked to do?	Yes No
	What aspects of the Bioblitz do you think are valuable? *Please rank 1=very poor; 5=excellent*	1. For science
		2. For community engagement
8	How well do you think the World Park Congress Bioblitz was organised?	1. well organised 2. some difficulties 3. disorganised
9	What aspects did you enjoy most? (can you give more than one example)	
10	What could be improved before the next Bioblitz? (can you give more than one example)	
11	How many surveys did you undertake?	
13	Do you think there should be follow up activities to the Bioblitz? If so, what sort of thing would you like to see and be involved with?	
14	Can you give the World Park Congress Bioblitz an overall rating	1, 2, 3, 4, 5, 6, 7, 8, 9, 10 where 10 is excellent
15	Other comments you would like to make	

Appendix C. Summary of the species found during a 10 hour survey period at the WPC BioBlitz

Table 5. Summary of the species found during a 10 hour survey period at the WPC BioBlitz. Surveys occurred across a number of different areas and habitats within the park.

Classification	Number of species in each classification	Total number of species recorded
Actinopterygii	1	2
Animalia	3	24
Arachnida	15	19
Aves	54	499
Branchiopoda	1	1
Chlorophyceae	2	2
Clitellaa	1	1
Fungi	2	2
Gastropoda	1	1
Insecta	24	56
Mammalia	2	2
Mollusca	1	1
Plantae	124	3821
Polychaea	1	4
Protozoa	1	1
Reptilla	3	3

Appendix D. BioBlitz communication results — web, email, print and social media

Channels

Event page: http://www.environment.nsw.gov.au/research/bioblitz.htm
Event registration page: http://www.eventbrite.com.au/e/world-parks-congress-bioblitz-tickets-13600801363
Media Release: http://medianet.com.au/releases/release-details?id=814154
Planetfest: http://worldparkscongress.org/involved/social_planetfest.html
Towards a Resilient Sydney-direct email ≈ 200

Newsletters

Sustainable Schools Newsletter 29 October — 3,300 subscribers
Internal staff newsletter — 3,000

Partner online marketing

National Geographic Channel: http://natgeotv.com.au/events/event.aspx?id=57
iNaturalist:
http://www.inaturalist.org/projects/world-parks-congress-bioblitz-2014
Taronga Zoo: http://taronga.org.au/content/join-taronga-world-parks-bioblitz-sunday-sydney-olympic-park-thi
Atlas of Living Australia:
http://www.ala.org.au/blogs-news/calling-all-citizen-scientists/
National Geographic Society:
http://greatnatureproject.org/events/world-parks-congress/

Marketing Outreach

Birdlife Australia: http://www.birdlife.org.au/events/detail/world-parks-congress-bioblitz/birdlife-capricornia

Macquarie University Newsletter:
http://bio.mq.edu.au/biology-newsletter-311014/
Sydney Society for Conservation Biology:
http://sydneyscb.org/2014/10/23/join-us-for-the-world-parks-congress-bioblitz-on-november-16/
http://sydneyscb.org/2014/11/21/bioblitzing-in-sydney-olympic-park/
Auburn Council: http://wentworthpointcommunity.org/news-photos/auburn-city-council-news-13-november-2014
Inspiring Australia: http://sydney.edu.au/science/outreach/inspiring/news/world-congress-bioblitz.shtml
University of NSW BEES student society — email to students
Citizen science Network Australia listserv ≈ 250
Macquarie University Student society — email to students
National Parks Association newsletter — Nov 2nd

What's On Pages
Australian Museum What's On:
http://australianmuseum.net.au/event/World-Parks-Congress-Bioblitz-2014
Eventful: http://sydney.eventful.com/events/world-parks-congress-bioblitz-/E0-001-076360003-4
Live Guide: http://www.liveguide.com.au/Events/1043289/Artists/World_Parks_Congress_BioBlitz
Auburn Council: http://wentworthpointcommunity.org/news-photos/auburn-city-council-news-13-november-2014
Around you:
http://www.aroundyou.com.au/whats-on/events/world-parks-congress-bioblitz

Facebook
WilderQuest Facebook
Reach:200–300 people

Royal Botanic Gardens Facebook:
https://www.facebook.com/RoyalBotanicGarden
Wildlife Tourism Australia Facebook:
https://www.facebook.com/Wildlife.Tourism.Australia
National Geographic Channel: https://www.facebook.com/natgeotvau/photos/a.369172682005.149963.318845797005/10152455595062006/?type=3&theater

Taronga Zoo
Refer to image below. This post received 49 'likes'

Tweets
A Twitter campaign was developed to encourage partners to tweet about the BioBlitz and share the news of the event using the hashtag #WPCBioBlitz. There was a limitation on using the @oehmedia account for multiple tweets limited brand reach on the day.
74 Tweets in total (BioBlitz and #WPCBioBlitz)
114 Retweets
65 Favourites
46 tweets using the unique hashtag #WPCBioBlitz

Instagram
National Geographic Channel:
http://instagram.com/p/vcDmzyIlxD/?modal=true
http://instagram.com/p/vcPvzGIlzo/?modal=true
http://instagram.com/p/vcrPubolw9/?modal=true

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