

Evaluating public engagement with biological recording events - Case study of City Nature Challenge 2018

Executive Summary

Public Engagement with Biological Recording (PEBR) events include several formats, such as BioBlitzes, mini-BioBlitzes, species surveys, guided nature walks, ID parties and various derivations of these, all of which share the common aims of collecting biodiversity data (environmental outcomes) while connecting the public with nature (social outcomes). The City Nature Challenge (CNC)¹ is an international citizen science initiative whereby cities compete to collect the most plant and wildlife observations in a geographic area over a set time frame. As part of the challenge, cities around the world have hosted a variety of PEBR events. To support more meaningful, comparative evaluation of the events carried out in Europe, the European BioBlitz network developed a common tool to assess the social outcomes of PEBR. This research insight aims to report the main outcomes from the experience of event organisers in the framework of the CNC 2018 in Europe. It also attempts to define and clarify differences among common PEBR formats. We outline key recommendations for developing a common evaluation tool for PEBR. This study was conducted with contributions from members of the European BioBlitz network, the COST Action 151212 and City Nature Challenge partners within the framework of the Horizon 2020 DITOs project.

The European BioBlitz Network

The European BioBlitz Network is a community of practice, brought together by a common interest in the BioBlitz format and its implications for public engagement with science, scientific and environmental management and policy outcomes.² The network also has a wider interest in related citizen science methodologies for PEBR.

Defining different PEBR formats

It is important to set out distinctions between PEBR formats (Figure 1). In recent years, the term ‘BioBlitz’ has become widely used as a catch-all term for different event for PEBR. In reality, the **“traditional” BioBlitz** is a race against the clock to record as many species as possible in a particular location and defined timescale (usually 24h). Key features include involvement of expert naturalists alongside members of the public collaborating to record all taxonomic groups. A Base Camp is always set up, as the main hub. The **mini-BioBlitz** derives directly from the BioBlitz model, usually operating under a shorter timescale, covering a smaller area and with fewer experts or participants. The primary aim of a **Species Survey** is collecting data, often focussing on a single taxonomic group or habitat using specific methods. Often, it involves more experienced participants, but may also include elements of public engagement. In contrast, the primary aim of a **Guided Nature Walk** is public engagement. The focus is often less scientific, with an expert naturalist facilitating learning rather than data collection.



Figure 1. Common event formats for PEBR

Note: These formats may exist independently or as subformats within larger umbrella events such as a large-scale BioBlitz or CNC. Credit: Matt Postles, Bristol Natural History Consortium

The **City Nature Challenge** is an inter-city competition in which citizens record as many species as possible and submit their observations via a mobile phone app and/or website. Launched in 2016 by the Natural History Museum of Los Angeles County and the California Academy of Sciences, the challenge went international in 2018 with 68 cities participating across the globe between 27 and 30 April 2018. Of these, 11 cities were from 6 European countries. By bringing together a diversity of event formats at the same time and in multiple cities, the CNC provided an opportunity to conduct a coordinated, comparable evaluation of PEBR

Challenges with evaluating PBER events and the need for a common tool

Approaches for PBER vary across the globe. Variations in, for example, regional contexts, access to resources and institutional priorities, language, technology and methods make standardisation of approaches highly impractical. Indeed, the adaptability of these formats to suit the needs of the event organiser is likely to be the source of their popularity, however act as barriers to coordination and collaboration between nations. Postles and Bartlett³ (2018) argue that there is a need for a common, flexible evaluation tool to support assessment of event outcomes according to local needs and objectives.

Methodology for developing a common evaluation tool

The development of the evaluation tool, co-designed by members of the European BioBlitz Network, proceeded using the following steps:

1. Consultation with event organisers to define event formats and evaluation indicators;
2. Collate case studies of event formats used during CNC 2018;
3. Conduct surveys with event organisers to assess motivations for collaborative evaluation;
4. Collaboratively review the agreed indicators for evaluation;
5. Co-design a common evaluation tool;
6. Data collection by event organisers;
7. Collation and joint analysis of indicator data;
8. Reflection and review.

A core survey of 16 questions was agreed based on common outcomes (outlined below) that all event organisers were interested in measuring. The survey was translated into seven languages (Catalan, Czech, English, German, Italian, Portuguese, Spanish). Event organisers were invited to collect data from visitors attending their events. Ethnographic observations over the four days of the CNC were also conducted during the Bristol & Bath and London initiatives; see Box 1 for the results of ethnographic observations.

Results from the ethnographic observations

Ethnographic observations conducted in London provided insights into CNC's methodologies. We identified four topics that are relevant to other PEBR event formats:

1. **It is difficult to identify who takes part in the event.** Majority of people using iNaturalist in London seemed to be CNC organisers or their friends. By contrast, many people did not use the app. This raises questions about relying on the statistics from iNaturalist to determine participant numbers. It also suggests a need for excluding event organisers from the statistics and trying to include headcounts of peripherally involved participants.
2. **The framing of the CNC as a competition may not be engaging for the public.** When communicating the CNC, some of the organisers focused on the competition between cities. However, the participants didn't seem to be motivated by this competition. This raises questions about whether the general public, or just the organisers, are motivated by PEBR built around a competitive framing.
3. **There appeared to be selectivity in terms of which plants and animals were recorded.** In Hyde Park, the commonest plants were hardly recorded. Participants appeared to be trying to record native plants while cultivated plants, people and pet dogs were not tagged. This suggests that the resulting observation data have a strong cultural component.
4. **There are questions about how well a survey captures critical opinions.** One respondent suggested the location of the event (West London) was exclusionary for people from diverse backgrounds and highlighted the need for events within disadvantaged areas. They did not want to fill in the survey nor to be audio recorded. This suggests the need for combining evaluation methods to capture critical voices that might not be captured with a survey.

Outcomes and indicators used in the common evaluation framework

For the purpose of this report, **outcomes** are defined as changes or benefits that result from participating in activities. **Indicators** provide evidence that a certain condition exists or certain outcomes have or have not been achieved.⁴ The outcomes chosen to be assessed in this evaluation and their corresponding indicators are:

- 1) **Knowledge outcomes**, assessed by: the biodiversity of the participants' local area; the threats to biodiversity; the organisations/projects working to protect biodiversity; and ways the participants can contribute to protecting the environment.

- 2) **Behaviour outcomes**, assessed by the participants' intention to: take part in similar events; join a biodiversity project; encourage others to participate; encourage wildlife in their surrounding areas; spend more time outdoors; and learn about local wildlife.
- 3) **Increased uptake of mobile application outcomes**, assessed by new usage of biodiversity-collection mobile applications.
- 4) **Increased public engagement outcomes**, assessed by the participation of people who had never been involved in a similar event.

24-hour BioBlitz in London, UK

The London CNC was led by the Natural History Museum in partnership with the Royal Parks and University College London, and supported by a range of partner organisations. The event was a 'traditional' 24-hour BioBlitz with the aim to conduct an intensive biodiversity survey within Hyde Park. The event centred around a basecamp and attracted over 130 participants, of which 110 people submitted 2,629 observations of 737 species using the iNaturalist app. Evaluation forms were available during the event, informal interviews were conducted with participants and ethnographic research observations of young participants (aged 5-19) were also conducted through the international LEARN CitSci research programme.

Guided nature walks in Padova, Italy

The CNC in Padua was organised by the Department of Land, Environment, Agriculture and Forestry of the University of Padua, in cooperation with the Municipality. During the four-day event, about 150 people collected 737 observations of more than 200 species using iNaturalist. Six guided nature walks - called ScopriNatura - were organised by local associations and the Municipality, with the assistance of 11 experts in botany, zoology and forestry.

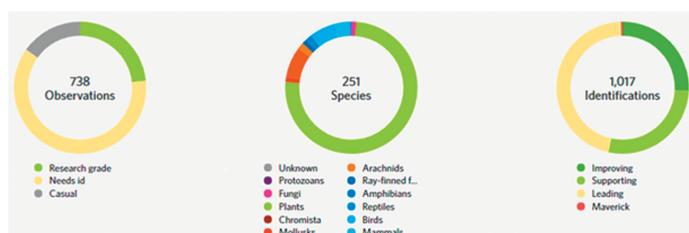
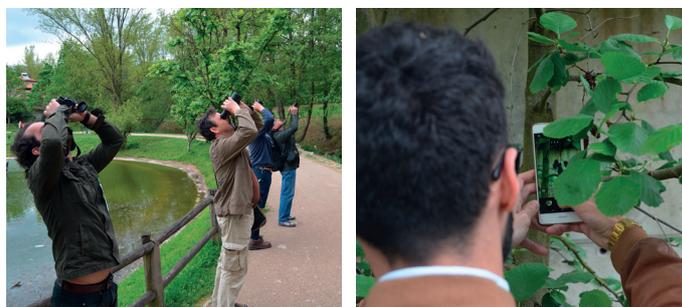


Figure 2. Stats of CNC Padua extracted from <https://www.inaturalist.org/projects/city-nature-challenge-2018-padova?tab=stats>. Credits: Vito Emanuele Cambria

Mini-BioBlitz in Guimarães, Portugal

The CNC in Guimarães was coordinated by the Landscape Laboratory, in collaboration with universities, associations for science communication, an environmental NGO, a local volunteer group and a local scout group. It consisted of eight events involving 100 people. A total of 238 observations of 112 different species were recorded using the BiodiversityGO! mobile app. The CNC was partly structured around the mini-BioBlitz format, with several biodiversity routes across different green areas. Each mini-BioBlitz lasted two hours and was led by two experts who assisted participants in the observation and identification of species.



Participants conducting observations during the CNC in Portugal. Credit: Rita Mendes, Laboratório da Paisagem



Nature walks in Padua. Credit: Giulia Corradini

Nocturnal species survey in Berlin, Germany

The CNC 2018 in Berlin was organised by the Museum für Naturkunde Berlin and supported by local NGOs, the municipality and research institutes. The common goal was to engage people with species recording using the Naturblick app. Almost half of the events were guided nature walks with a focus on birds or amphibians; other formats included species surveys. A nocturnal species survey for insects gave participants an insight into scientific methods by using a light trap. Overall 334 participants made observations with Naturblick.

Biomaratón and ID Party in Madrid, Spain

Global Biodiversity Information Facility (GBIF) Spain hosted by the Royal Botanic Garden (RJB-CSIC), coordinated CNC 2018 - Biomaratón - in the metropolitan area of Madrid including 28 municipalities. The intense outreach and training campaign carried out to encourage citizens to participate included: a workshop on the use of the Natusfera platform; presentations to inform stakeholders about CNC; a field activity to record species observations; and an ID Party with experts to identify species. The ID Party, 'Identificatona', was the final activity attended Natusfera users and taxonomic experts who contributed to identify and validate 1,231 observations of the nearly 7,000 recorded in Madrid.



ID Party 'Identificatona'.
Credit: GBIF Spain



Survey teams at the
Bristol & Bath CNC.
Credit: Matt Postles

Wildlife Survey Teams in Bristol & Bath, UK

The Bristol & Bath City Region used the CNC to bring together a large number of partner organisations to host mini-BioBlitz events, species surveys and guided walks. This was supplemented with a programme dedicated to supporting young naturalists to take on leadership roles as part of the CNC Wildlife Survey Teams. Seven teams, themed by taxonomic group, came together, led by trained volunteers. With guidance from the Bristol Natural History Consortium, the teams developed their own programme of species ID trainings, social wildlife walks and mini-BioBlitzes. The group came back together at the end for an ID party / DataHack.

Conclusions

A synthesis of event formats and an attempt at evaluating them with one common tool has not to date been carried out. The multifaceted nature of PEER events means that establishing a common evaluation tool is highly challenging. This is particularly true for the European CNC events in 2018, in terms of the variety of audiences and their level of participation. Another challenge was to encourage participants to fill in the evaluation survey; email addresses should be collected from participants to enable a post-event evaluation. Based on this case study, we seek to provide recommendations to improve evaluation in the future.

Recommendations

- The survey was piloted during CNC 2018 in different languages; however, further work should be conducted to validate the translated questionnaires.
- Gather baseline data on the motivations for participating in PEER events in different countries and cultures. Such useful information can be provided to event organisers for improving strategies for public engagement.
- The design of a common evaluation tool needs to be linked to an offer of support to event organisers to achieve sufficient buy-ins, and should be well resourced to provide training, and incentives.
- The survey needs to include a clearer distinction between the different event formats, and respondents need to be informed about which event format they have attended.

References

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How to cite

DITOs consortium, (2019). Developing a Common Evaluation Tool for Public Engagement with Biological Recording Events Using the Case Study of City Nature Challenge 2018 in Europe. DITOs policy brief 13

Colophon

This research insight was facilitated by the lead authors from ECSA & COST Action 151212 through open interaction and discussion with the ECSA BioBlitz working group. While this was carried out as part of H2020 'Doing It Together Science' (DITOs) Coordination and Support Action project, the views expressed in it do not reflect the consensus opinion of DITOs and City Nature Challenge partners

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 709443.