The rise and rise of BioBlitz: public engagement and wildlife recording events in the UK

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Abstract

A BioBlitz is a collaborative race against the clock to discover as many species of plants, animals and fungi as possible, within a set location, over a defined time period - usually 24 hours. A BioBlitz usually combines the collection of biological records with public engagement as experienced naturalists and scientists explore an area with members of the public, volunteers and school groups.

The number of BioBlitz events taking place in the UK has increased explosively since the initiation of the National BioBlitz programme in 2009 attracting large numbers of people to take part and gathering a large amount of biological data. BioBlitz events are organised with diverse but not mutually exclusive aims and objectives and the majority of events are considered successful in meeting those aims.

BioBlitz events can cater for and attract a wide diversity of participants through targeted activities, particularly in terms of age range, and (in the UK) have engaged an estimated 2,250 people with little or no prior knowledge of nature conservation in 2013. BioBlitz events have not been able to replicate that success in terms of attracting participants from ethnic minority groups.

Key positive outcomes for BioBlitz participants identified in this study include enjoyment, knowledge and skills based learning opportunities, social and professional networking opportunities and inspiring positive action

Whilst we know that these events generate a lot of biological records, the value of that data to the end user is difficult to quantify with the current structure of local and national recording schemes.

Glossary of terms

Event organiser/ BioBlitz organiser - the organisation or individual responsible for the delivery/management of an individual BioBlitz event

Volunteer - a formally recognised volunteer assisting at a BioBlitz event. This encompasses 'non-specialist' volunteers performing a wide range of roles at the event as well as specialist naturalist volunteers

Naturalist - a formally recognised specialist volunteer performing a leading role in species identification and/or recording at a BioBlitz event

Visitor - visiting members of the public, school groups, community groups, etc. who take part in the BioBlitz

Participant - a generic term for all individuals taking part in the BioBlitz in any capacity

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1 Introduction

1.1 What is a BioBlitz?

A BioBlitz is "a collaborative race against the clock to discover as many species of plants, animals and fungi as possible, within a set location, over a defined time period - usually 24 hours." (Robinson et al., 2013)

A BioBlitz usually combines the collection of biological records, as a form of contributory citizen science (Tweddle et al., 2012), with public engagement. Naturalists, scientists and volunteers work together with members of the public and school groups to create a snapshot of the variety of life that can be found in an area. This provides an opportunity for participants to learn together and share their expertise and enthusiasm for nature whilst collecting valuable information about the biodiversity of their local area.

The format offers a range of benefits (PWRC, 1996):

- Fun - unlike a formal biodiversity survey, a BioBlitz often has an atmosphere more akin to a festival with the short time frame adding an exciting, competitive element.
- Local - it is easy to think of biodiversity as being remote, focussing on coral reefs and rainforests. A BioBlitz offers a community the opportunity to discover and explore the biodiversity on their doorstep.
- Identifying rare/ unusual species - bringing together experts and using their insights can identify uncommon or special habitats and species for protection and management. In some cases rare species may be uncovered.
- Documenting species occurrence - although incomplete, the species lists generated are a strong starting point for an inventory. If submitted to local and national surveys the data may go on to make a valuable contribution to research, policy and planning.
- Engagement/ partnership - the multifaceted nature of a BioBlitz presents an opportunity for organisations and individuals to collaborate with each other and their local community, sharing their expertise and engaging people with their own messages.
- Media attention - the excitement generated by a single big event with a diverse collection of people involved can be a strong hook for media journalists.

The format offers a great deal of flexibility and the brand identity has been adopted into other related activities. For example, in 2013 London's Horniman Museum was inspired by outdoor BioBlitzes to complete a major review of their Natural History Collections resulting in a 12 month project (Horniman Museum 2013).

1.2 A brief history of BioBlitz

1.2.1 Origins

The first BioBlitz was run by Sam Droege of the U.S. Geological Survey at Kenilworth Aquatic Gardens, Washington D.C. in 1996 (PWRC, 1996). It was at this event that the term "BioBlitz" was coined and offered out as an open source idea be used, adapted, and modified by any group.

In 1998, a similar event was run at Walden Pond, Massachusetts by Harvard entomologist E.O. Wilson and Peter Alden termed "Biodiversity Day" (Walden Biodiversity, 2009). The event aimed to document over 1000 species in one day and spawned a series of further events. The similarity between the formats has led to the terms 'Biodiversity day' and 'BioBlitz' becoming largely interchangeable. Since then BioBlitz events have been undertaken in several countries across the world with various derivations from the theme.

1.2.2 BioBlitz in the UK

References to BioBlitz events in the UK first appear in 2001 (PWRC, 2005) but the first substantial events are thought to have been run by Lincolnshire Wildlife Trust at Banovallum House in 2006 through 2009 (LWT, 2009) although published information about these events is limited.

In 2009, Bristol Natural History Consortium (BNHC) ran their first event at Ashton Court Estate, Bristol and partners under the Open Air Laboratories project (OPAL) ran the UK's first coastal BioBlitz in Devon. Following the success of these events, the two events formed a partnership and raised funds to start a National BioBlitz programme (BNHC, 2013), supporting other organisations in running a series of 35 events across the country in 2010. BNHC have continued to support a growing network BioBlitz organisers and volunteers with 37 events registering with the network in 2011, 65 events in 2012 and 86 events in 2013.

As technology has advanced and online access to expertise has become more easily available, biological recording has enjoyed the opportunity to expand its repertoire of platforms from records submission websites to species identification mobile apps. In 2012, capitalising on this, a group of environmental professionals voluntarily established Garden BioBlitz - allowing enthusiastic participants to BioBlitz their own gardens, consulting expert naturalists and scientists online before submitting their records (Garden BioBlitz, 2013).

1.3 BioBlitz in context

1.3.1 Public engagement with nature

The natural environment is important to several aspects of peoples lives including health and wellbeing, education and heritage (Burns et al. 2013; Moss, 2012; HM Govt., 2011), however the level to which individuals and communities interact with the natural world is in decline (Natural England, 2013) with increasing urbanisation and shifts in cultural behaviour.

In the Natural Childhood report (Moss, 2012), The National Trust highlighted the consequences of an impoverishment of childhood experiences and engagement with nature and the potential benefits of a more 'natural childhood' with opportunities to learn and play outdoors.

The UK Government set out its ambition in 2011, to reconnect people with nature by empowering local communities to protect local environments, supporting voluntary action, providing better neighbourhood access to nature and removing barriers to outdoor education (HM Govt., 2011).

Outdoor events like BioBlitz can help to break down barriers to engagement with the natural world by providing a structured activity that invites exploration and discovery of a neighbourhood green space and the wildlife that lives there, giving individuals the confidence to experience the outdoors for themselves. As a flexible format, a BioBlitz can be tailored to suit target groups in an attempt to reach those individuals identified as priority groups, such as children and families (Moss, 2012), or those having low/falling engagement with the natural world, such as Black and Minority Ethnic groups, disabled groups and those aged over 55. (Natural England, 2013). If used effectively, BioBlitz events can be a helpful vehicle to help support delivery of Outcome 4 of the Department for the Environment, Food and Rural Affairs Biodiversity 2020 strategy: "By 2020, significantly more people will be engaged in biodiversity issues, aware of its value and taking positive action." (Defra, 2011)

BioBlitzes also provide opportunities for informal outdoor education by bringing together members of the public, school groups, specialist naturalists and volunteers and providing a collaborative atmosphere with the common goal of discovering wildlife. Engagement of this kind may also help to contextualise the work of experts and volunteers alike and foster the socio-cultural aspects of gathering knowledge (Ellis & Waterton, 2004).

1.3.2 Biological recording

The collection of biological records is a contributory form of citizen science, with amateur enthusiasts gathering information about the natural world, feeding a wider knowledge base (Tweddle et al. 2012). Building in scope from personal lists and local societies to the establishment of national recording schemes and formal data repositories in the 1950's and 60's, the contribution of voluntary and amateur recording to our understanding of UK wildlife populations and distributions is now world leading and its significance vitally important to national monitoring and conservation efforts (Burns et al. 2013).

In the 2011 environmental white paper (HM Govt., 2011) the UK Government reiterated its support for voluntary recording efforts and the provision of infrastructure to support such activities, recognising the potential contribution to environmental policy as explored by Ellis and Waterton (2004).

By bringing together a diversity of expertise, voluntary and professional, enthusiasts and lay public, with a central objective, BioBlitz events may help to both galvanise the efforts of the biological recording community and introduce the uninitiated and increase participation. There is also the potential to gather a significant dataset for a particular site with events collecting between a few hundred and several thousand species records over the course of each event.

2 Aims and Objectives

The purpose of this study is to identify and assess the key outcomes of BioBlitz events in the UK through the following objectives

- To assess the value of BioBlitz as a tool for public engagement with the natural world relating to Outcome 4 of the UK Government Biodiversity 2020 strategy: "By 2020, significantly more people will be engaged in biodiversity issues, aware of its value and taking positive action."
- To identify the audiences of BioBlitzes in terms of scope and diversity and identify patterns of attendance
- To estimate the value of BioBlitz as an environmental data collection method
- To compile a basic statistical history of BioBlitz in the UK and identify any trends in the data
- To test the hypothesis that the activity National BioBlitz Network project has a positive effect on participation in BioBlitz events in the UK
- To make recommendations to the sector based on the findings of this study

BioBlitz is a diverse and multifaceted concept and several factors must be taken into account when measuring success of the network as a collective:

- Level of attendance
- Meeting the aims and objectives of the organiser
- Individual visitor outcomes
- Volunteer/staff engagement outcomes
- Economic outcomes
- Environmental outcomes
- Organisation reach and activity of the network

3 Methods

Several key audiences of BioBlitz events were identified and targeted for data collection.

These were adult visitors, child visitors, volunteers, naturalists and event organisers

Two main data collection methods were used in this study:

3.1 Direct data collection

Data was collected via a series of audience targeted questionnaires. In the lead up to events, event organisers were sent an online evaluation pack containing template questionnaires and encouraged to use these to collect data from visitors at their events. This included separate questionnaires for adults and children.

Post event, organisers also received links to an online questionnaire for their own feedback and links to a separate questionnaire to distribute to their volunteers and naturalists. This was followed up by phone.

Online versions of all questionnaires were made available on the BioBlitz website (www.bioblitzuk.org.uk) and promoted through social media and the BioBlitz newsletter.

3.2 Retrospective analysis

In order to collect historic and more qualitative data from previous BioBlitzes, individual event reports and post press were collated by both direct contact with organisations and web search. The relevant comparable data was then extracted for analysis.

4 Results

4.1 Data Summary

33 of the 84 BioBlitz events that took place in 2013 completed the detailed online feedback questionnaire. This was supplemented by basic data collected by web search for a further 51 events from 2013, 69 events from 2012, 20 from 2011 and 29 from 2010, the year that the National BioBlitz Network was launched. Web searches identified 11 pre-2010 events. Where data was deficient, individual events were either excluded from the analysis or, where appropriate, allocated an estimated value based on the mean value for events that year (see individual sections for details). Mean values were derived based on 'site based events' only and excluded alternative formats such as Garden BioBlitz which were structured very differently.

7 BioBlitz events collected visitor data using the questionnaires gathering a total sample of 53 adults and 19 children. Based on our estimates of attendance at BioBlitzes UK wide, 23,415 in 2013, this sample size is not sufficient to draw statistically robust conclusions. As such, any conclusions that can be drawn from the data should be used with caution.

37 volunteers and naturalists completed the survey forming a 3.5% sample of our estimated total for 2013 of 1087 which is much healthier than the 0.2% sample of public participants, however a larger sample would still be preferable to make the conclusions drawn more robust.

4.2 Attendance and marketing

The scale and attendance of a BioBlitz is determined largely by three factor groups:

- the resources available to the organiser and how they deploy them (staffing, financial, marketing)
- the practicalities of the event site (size, accessibility, amenities)
- external factors (weather, competing activities)

Through direct surveying, retrospective analysis and an online search for post press articles, estimates of attendance for BioBlitz events since 2006 were established. Where data was absent, the mean value was applied. It is noteworthy that the methods used for estimating attendance vary by event affecting the reliability of the data.

4.2.1 Attendance

Figure 1 shows the estimated mean visitor attendance per event and Figure 2 shows the estimated total attendance (each indicated by bubble size) for BioBlitz events in the UK since 2006. In 2009 large scale events run by BNHC and the Natural History Museum brought a significant increase in attendance, before an explosive expansion in 2010 with the launch of the National BioBlitz programme encouraging more event organisers to take part with large scale events. Participation dropped again in 2011 as the National BioBlitz programme failed to attract funding. In 2012/13, the mean values mask a wide range of event scales, from as few as 4 up to 2,500, as the number and diversity of events exploded. The scale of individual events has failed to reach the heights seen in

2010 but with the format growing in popularity among event organisers, BioBlitz events continue to engage a significant total audience.

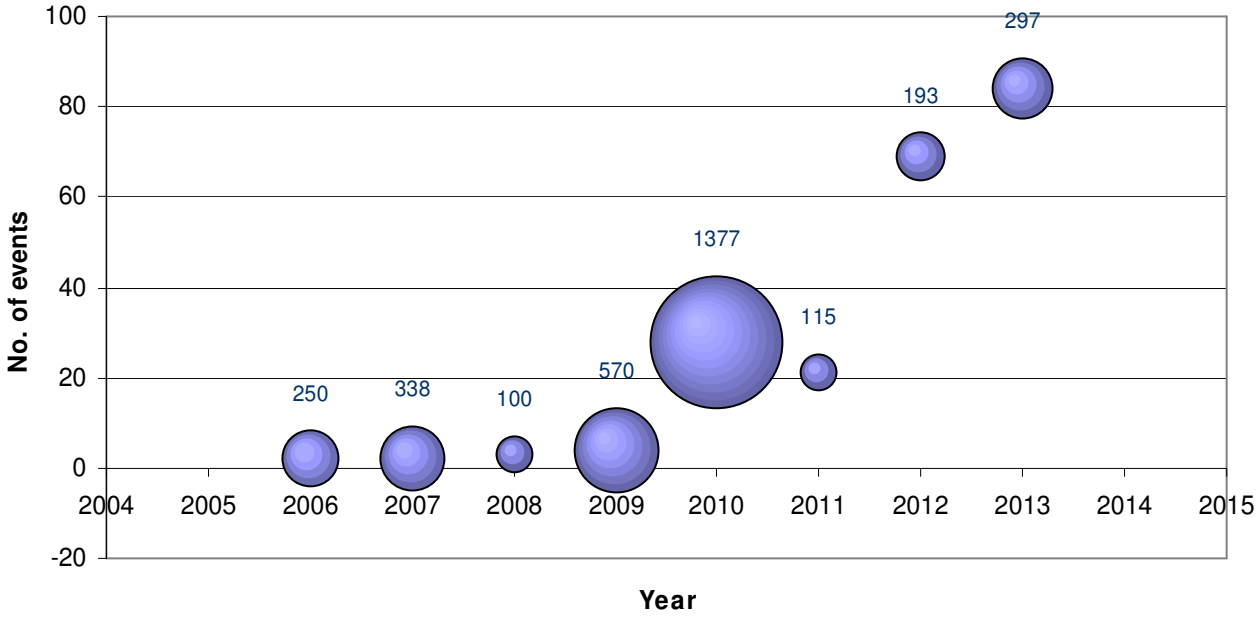


Figure 1: Bubble size indicates the estimated mean number of visitors participating in each BioBlitz event that year (values given) whilst the position of the bubble on the Y axis indicates the number of BioBlitz events held that year

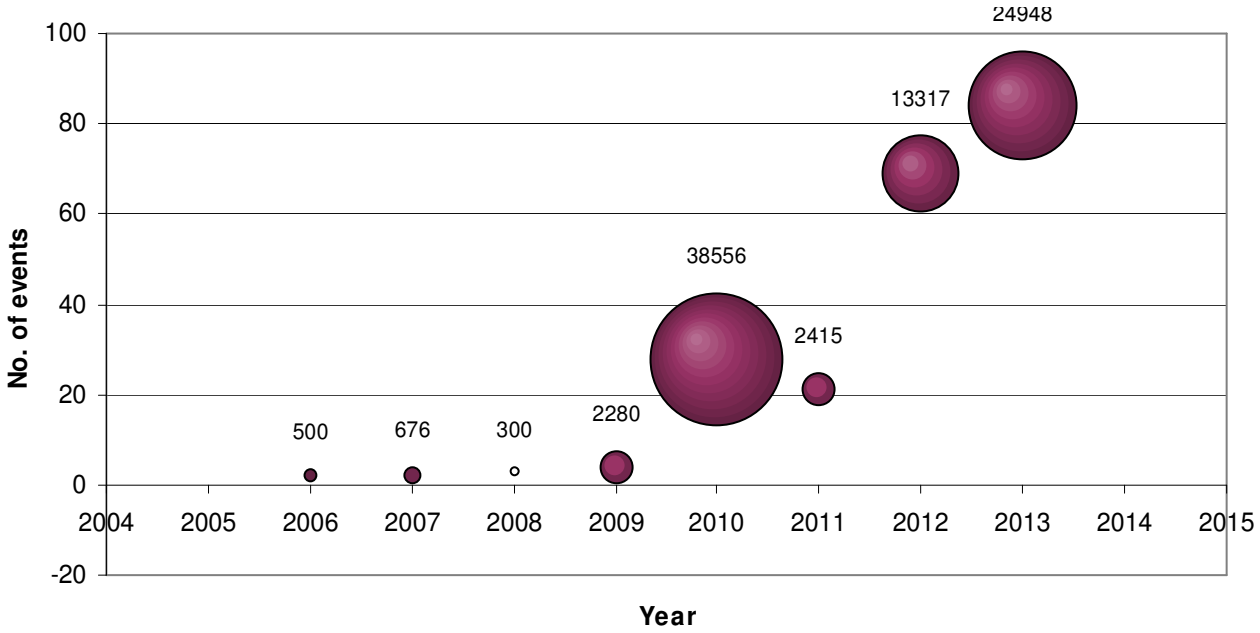


Figure 2: Bubble size indicates the estimated total number of visitors participating in BioBlitz events that year (values given) whilst the position of the bubble on the Y axis indicates the number of BioBlitz events held that year

For 2012 and 2013 enough data was available to break down participants into public visitors, schoolchildren, non-specialist volunteers and naturalists where as for previous years data was insufficient. As such, public visitors and schools were grouped as 'visitors' and volunteers and naturalists grouped as 'volunteers'. Between 2012 and 2011, as well as a significant increase in public participation we see a marked drop in schools participation in BioBlitz with less than 15% of events hosting activities aimed at schools.

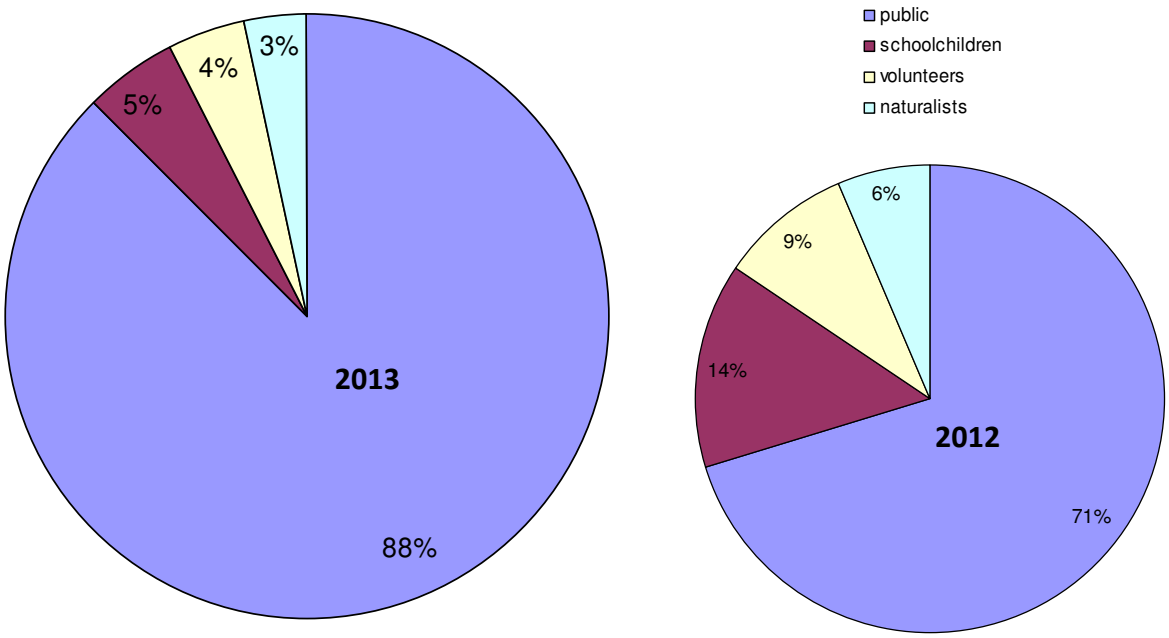


Figure 3: Breakdown of participants taking part in BioBlitzes in 2013 (n=36) with 2012 data for comparison (insert) showing a marked decrease in the proportion of participation by schoolchildren

4.2.2 Volunteer participation

It is interesting to note the consistency of volunteer participation since 2010 (see Figure 4) despite wide fluctuation in the number of events and number of visitors. This may provide evidence of an anecdotally perceived increase in difficulty of recruiting volunteers, particularly specialist naturalists, for a growing number of BioBlitz events.

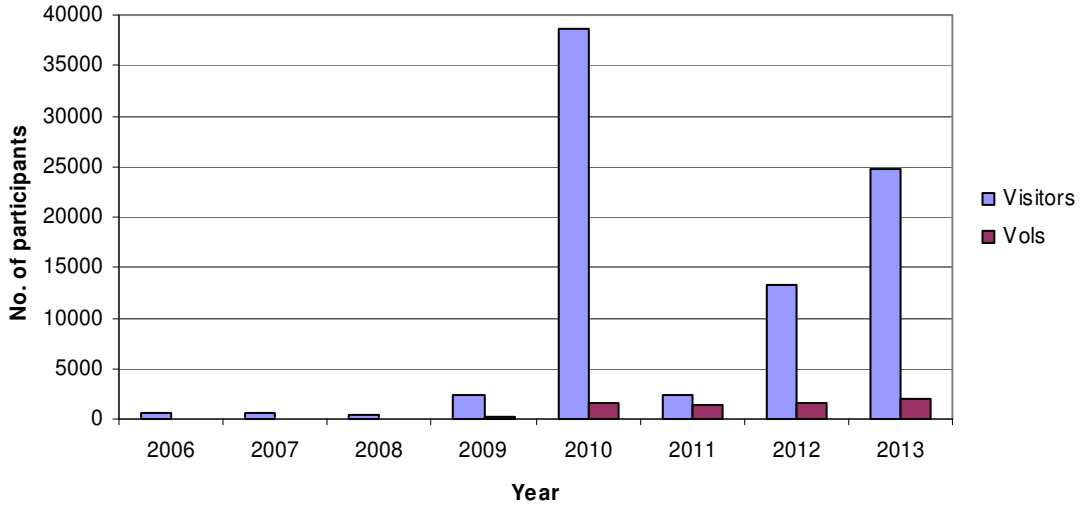


Figure 4: Participation in BioBlitz since 2006 demonstrating the variability in visitor participation nationally compared with a much steadier trend in volunteer participation. This creates a highly variable ratio of volunteers to participants.

4.2.3 Event marketing

Using data collected from BioBlitz events run in 2013, we can compare the marketing methods used and perception of success among event organisers with visitors self identified means of awareness (organisers n=33, visitors n=59). It is interesting that the central BioBlitz Network website was perceived as more successful than the visitor feedback would indicate, suggesting that a central publicity campaign may be less effective than thought.

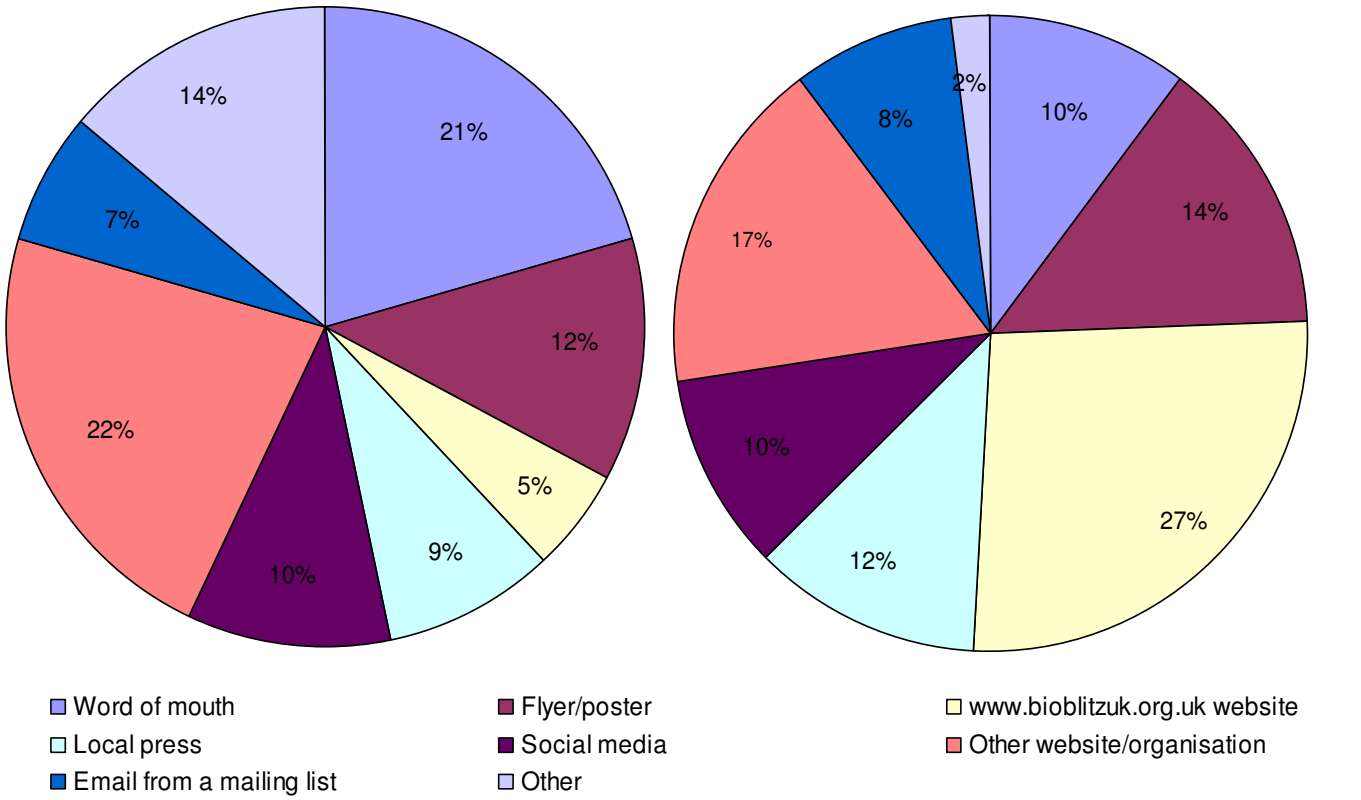


Figure 5: Relative frequency with which visitors self identified as having found out about the BioBlitz event (left) vs. perceived success of marketing efforts by event organisers indicated by relative frequency of rating as 'Successful' or 'Very successful' (right). Visitors identified as 'passing by' (approx 16% of the visitors surveyed) were discounted for the purpose of this comparison.

4.3 Meeting aims of the organiser

When asked to identify their key motivations for running a BioBlitz, event organisers most frequently selected the promotion of biological records collection and citizen science and engaging the local community with a green space. Promotion of economic interests (i.e. membership, retail, fundraising) was least frequently selected. Figure 6 demonstrates how diverse the motivations for running a BioBlitz event are even within a single event.

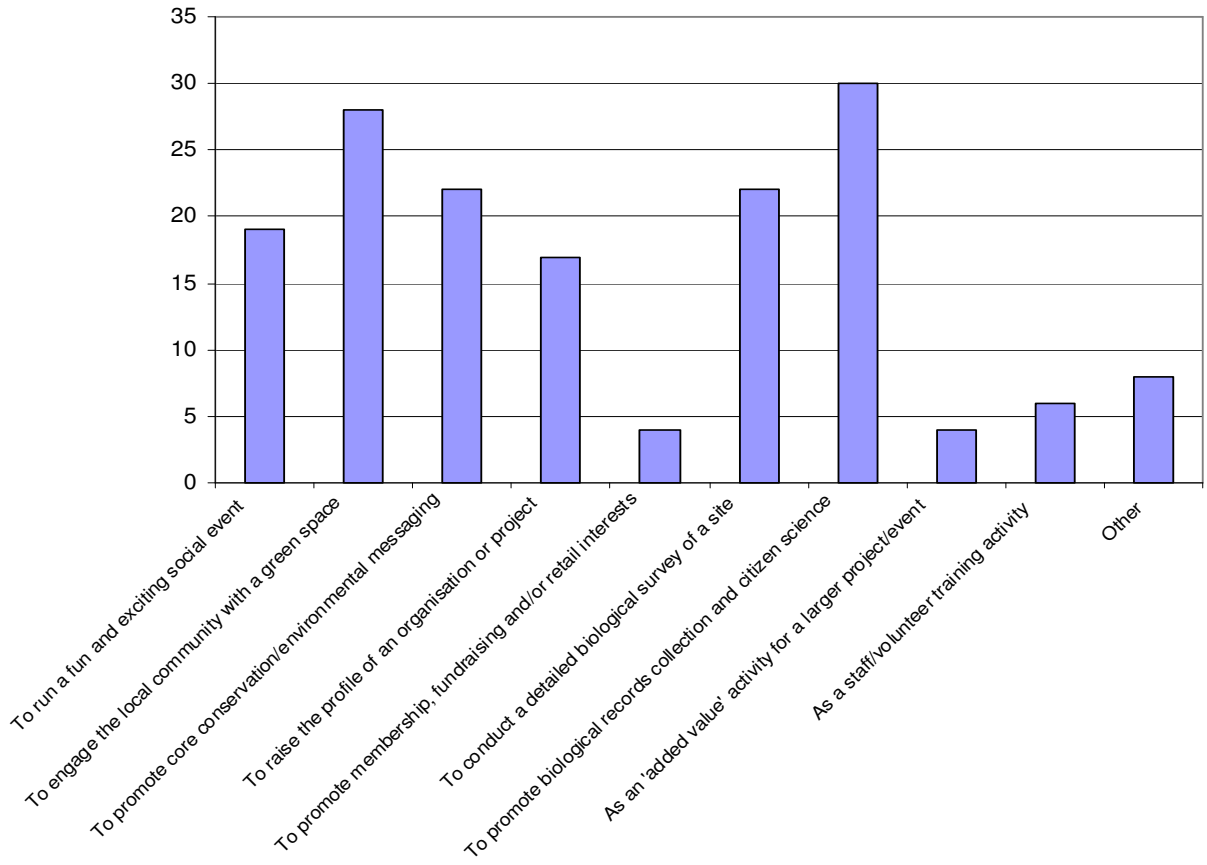


Figure 6: Event organisers responses to the question "What was/were your main motivation(s) for running a BioBlitz?" in 2013. n=38

Event organisers were then asked to self assess the success of their BioBlitz in achieving their aims identified above. All of the participating event organisers indicated at least partial success in achieving their initial aims with 70% indicating that the event achieved their aims at or beyond their expectations (see Figure 7). Several event organisers also mentioned unexpected additional positive outcomes with 27% of respondents citing networking opportunities and new relationships as a key 'bonus' to running the event.

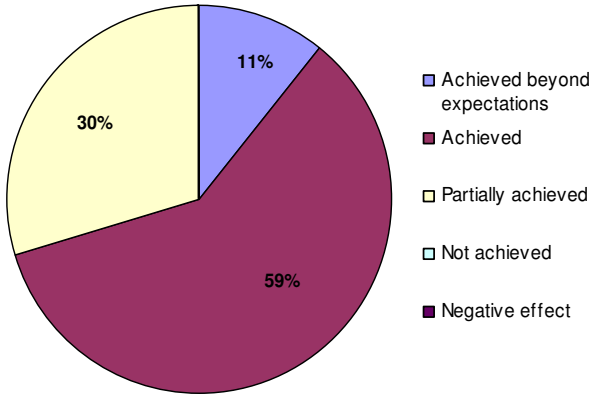


Figure 7: Self identified levels of success in achieving aims of the event organiser for respondents to 2013 survey. n=38

4.4 Individual outcomes

4.4.1 Enjoyment

When asked to identify their favourite thing about the event, adults most frequently cited the opportunity to speak to knowledgeable and enthusiastic people about wildlife as well as finding and learning about particular species and taking part in specific activities.

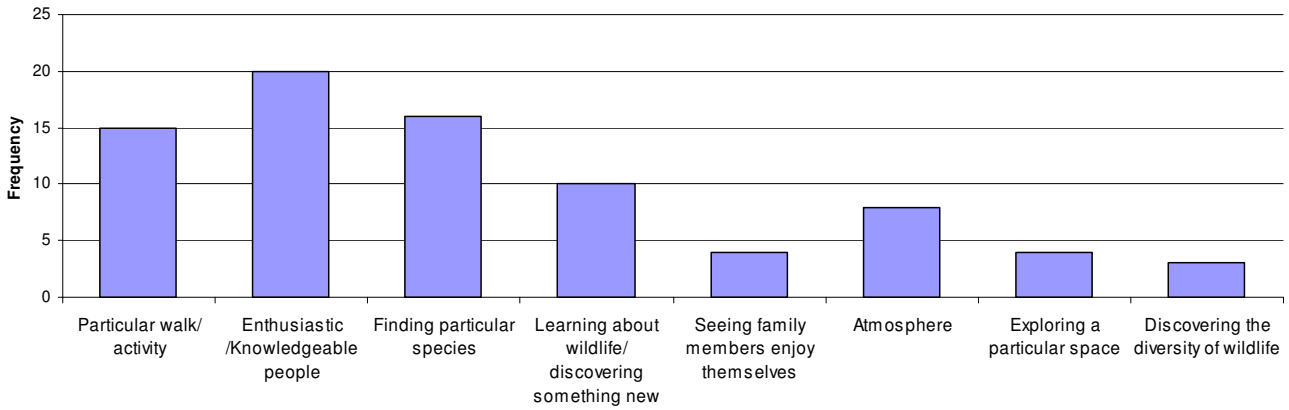


Figure 8: Adult visitors responses to the question "What did you enjoy most about the BioBlitz?" in 2013, categorised into groups.

Whilst adults tended to emphasise learning opportunities and interaction with 'experts', children almost uniformly cited practical activities, particularly those that involve direct contact with wildlife such as pond dipping and bug hunting.

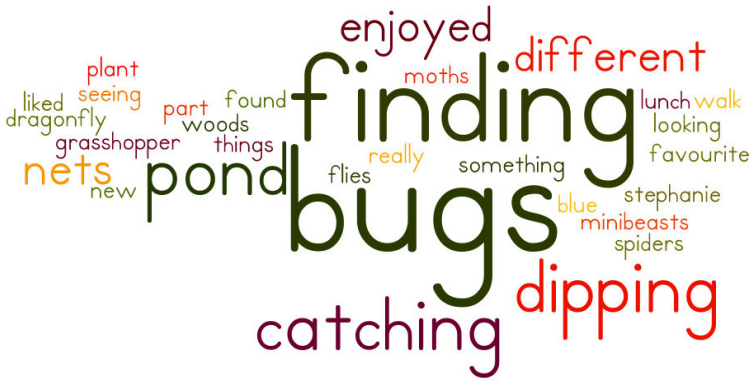


Figure 9: Word cloud of children's responses to the question: "What was your favourite thing about today?" at BioBlitzes in 2013. n=19

Figure 10: Word cloud of adults responses to the question: "What did you most enjoy about the BioBlitz?" n=60

4.4.2 *Self identified learning*

When asked what they had learned through the event, 90% of visitors surveyed self identified as having learned something new. The remainder left the question blank with the exception of one child who simply wrote "no". Most responses were facts about particular species or groups such as "Lots! Wasps lay eggs in the leaves of oak trees, male spiders have boxing gloves and crickets hear through their abdomen and elbow!" or how to identify different species, "how to identify some wild flowers that I have in my garden". A few also mentioned techniques for finding and/or surveying wildlife and conservation and land management techniques including "detecting bats through high frequency sounds" and "about dry stone walling".

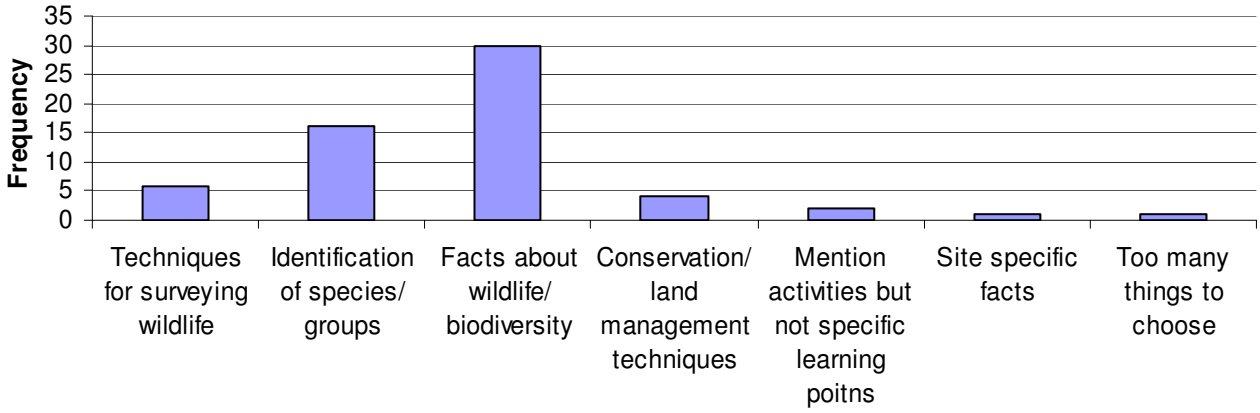


Figure 11: Adult visitors responses to the question "Do you feel that you learned something new? What is the most interesting thing that you learned?" in 2013, responses categorised into groups. n=60

4.4.3 *Further action*

When asked whether they would do anything new as a result of their experience at the event, all BioBlitz visitors surveyed in 2013 expressed an intent to take some form of further action, with low effort behaviours, such as attending further events and sharing learning with friends being most popular. The most popular of the higher effort behaviours was encouraging wildlife into their own gardens, whilst a significant proportion of visitors (over

14%) were also inspired to seek volunteering opportunities and/or donate to environmental organisations (see Figure 12)

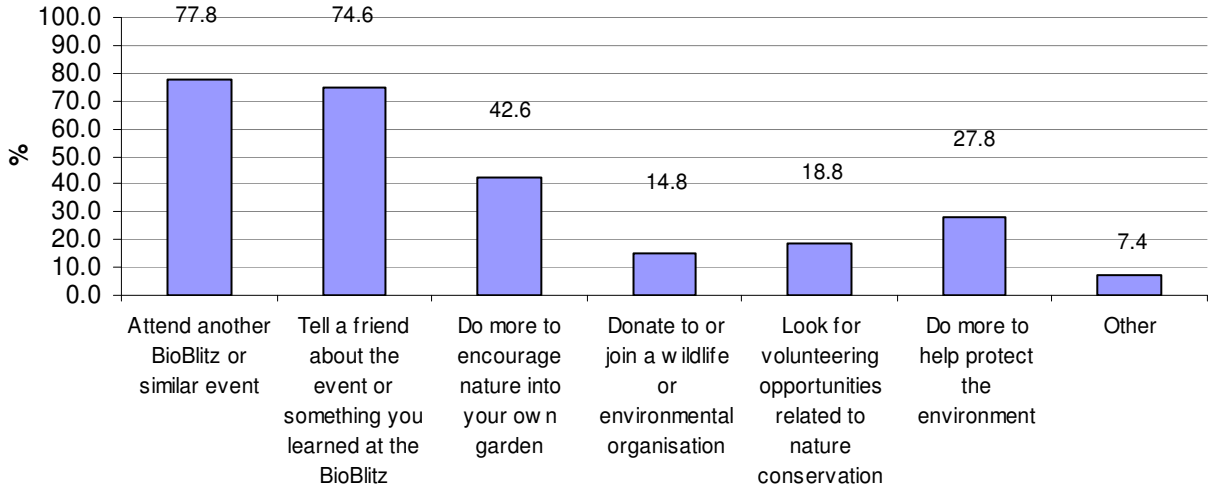


Figure 12: Further action selected by adult BioBlitz visitors in 2013 when asked "Will you do anything new as a result of your experience at BioBlitz?"

4.5 Volunteer engagement

When asked what the highlight of their volunteering experience was, we see a difference in priorities between naturalists and non-specialist volunteers (see Figure 13). Finding unusual species and enjoying the site was more frequently mentioned by naturalists whilst other volunteers focussed on learning new skills and enjoying taking part in activities. Public engagement and working with children were the most often mentioned by both types of volunteer, however specialist naturalists less frequently specified working with children (mentioned by 17% of respondents) than non specialists (mentioned by 29% of respondents).

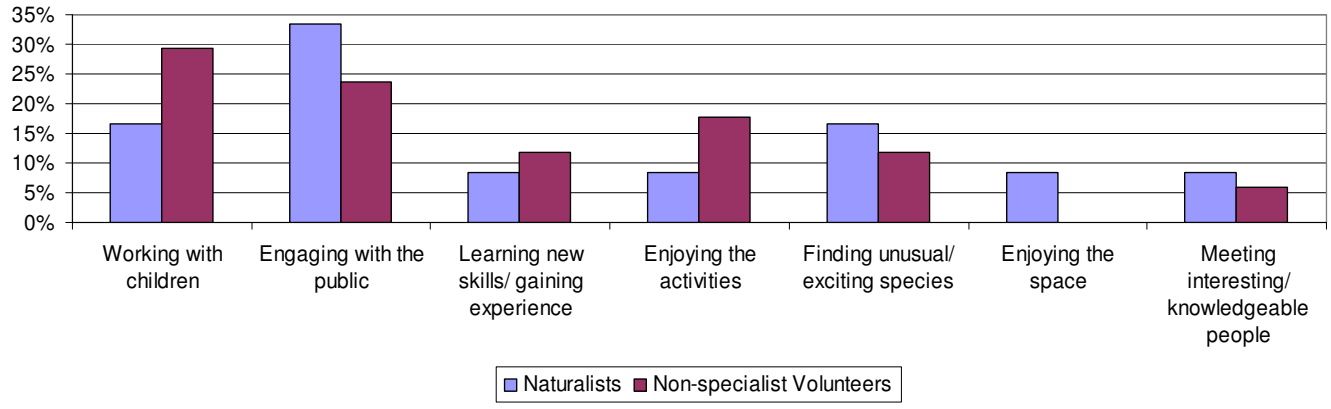


Figure 13: Responses of volunteers (n=17) and specialist naturalists (n=12) at BioBlitz events in 2013 to the question "what was the highlight of your volunteering experience?"

Feedback from volunteers was overwhelmingly positive reporting high levels of enjoyment, gaining of experience and networking opportunities and with 100% of respondents stating that they would volunteer at a BioBlitz event again.

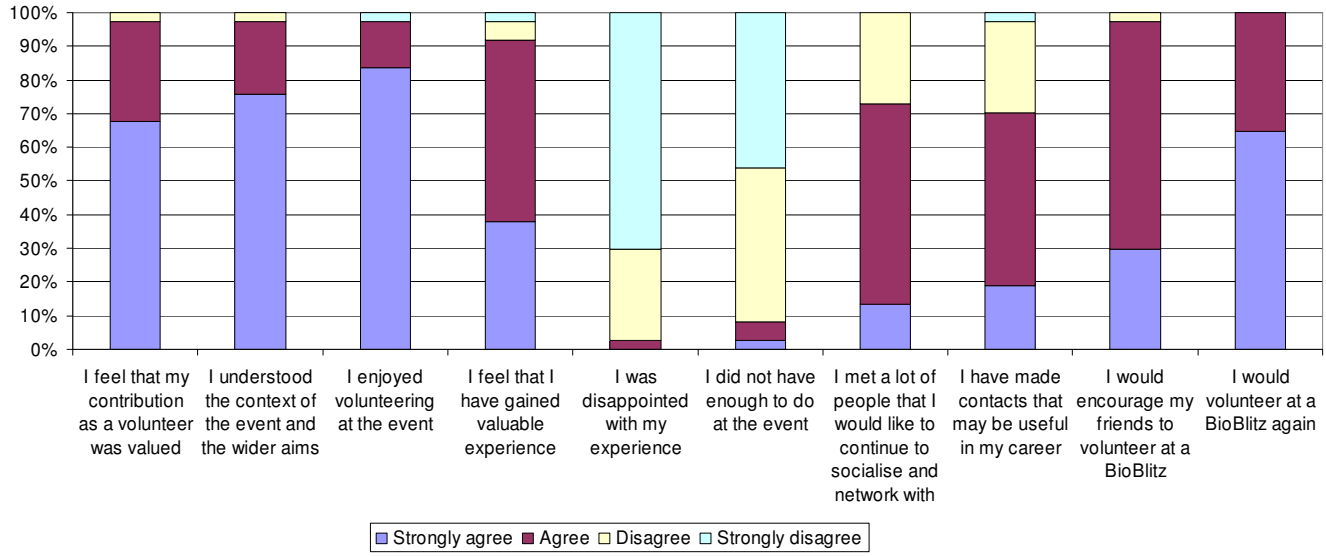


Figure 14: Volunteers were asked to rate their level of agreement with statements relating to the quality of their volunteering experience given here on the X-axis. Their responses are mapped as a percentage of the total number of responses

4.6 Community outcomes

It is difficult to quantitatively measure the continued effects of an individual event on the local community, let alone the cumulative effects of BioBlitz events nationwide. However we can assess the demographic spread of visitors to the events to get an idea of the level of engagement with different sections of the national community. It is worth noting that sample size was low and conclusions drawn from these data should be treated with caution.

Age groups

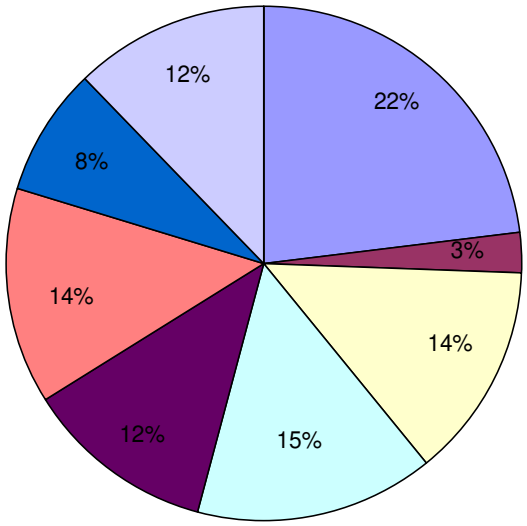


Figure 15: Age groups of visitors to BioBlitz events surveyed in 2013 showing a wide diversity of groups engaged. This may reflect the variety of activities targeting different audiences both within and between events. n=76

Ethnicity

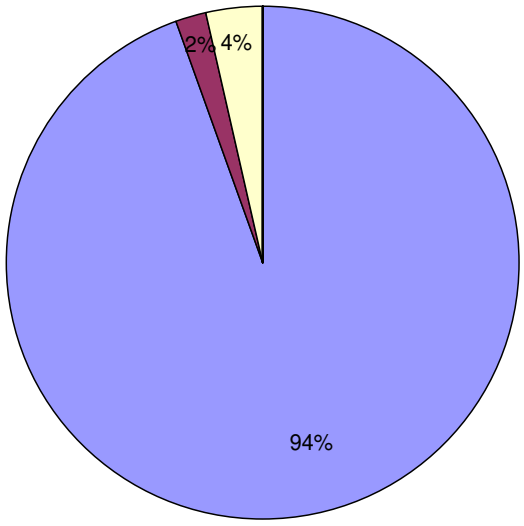


Figure 16: Ethnicity of adult visitors to BioBlitz events surveyed in 2013. 100% of visitors surveyed were from a white background. Whilst we expect this group to be dominant based on national engagement surveys (Natural England, 2013) anecdotal evidence suggests that members of Black and Minority Ethnic Communities do take part in events but have not been captured in this analysis, raising questions about sample size and/or bias. See section 5. n=57

Employment status

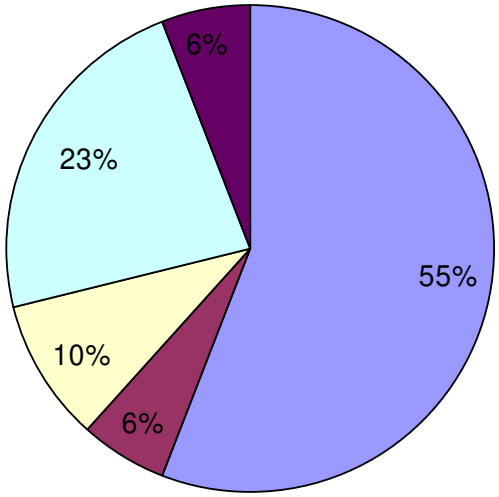


Figure 17: Employment status of adult visitors to BioBlitz events in 2013. n=53

- Employed (FT/PT)
- Unemployed
- Education
- Retired
- Other

Attitudes to nature conservation

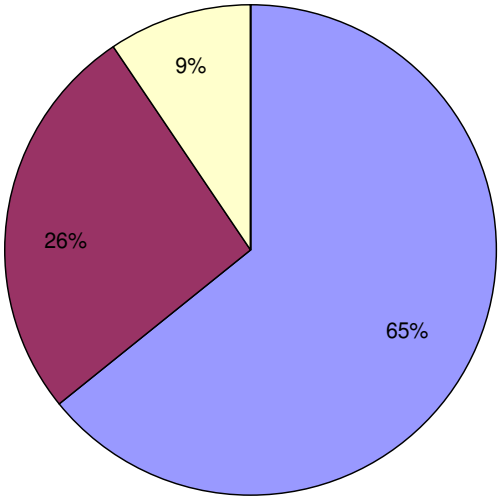


Figure 18: Self identified attitudes of adult visitors to BioBlitz events in 2013. Although the majority of visitors self identify as being highly interested in nature conservation, a sizeable minority self identify as knowing little about the subject. n=53

- I am concerned about nature conservation and do w hat I can to help
- I w ould like to do more to help
- I don't know much about nature conservation or how I can help
- I don't know much about it and it is not a high priority for me
- Other

4.7 Economic outcomes

4.7.1 BioBlitz funding streams

A BioBlitz is a very scalable event format and, as such, can be run on a range of budgets depending on the site and available infrastructure. About a third of events have multiple funding streams feeding into their BioBlitz whilst the remainder rely on a single source. Many events rely on core funding and/or in kind support to cover their costs and several events run on in kind support alone. Charging ticketed entry is discouraged and was the least cited method of raising funds and event sponsorship was also selected infrequently. Is this due to a paucity of interest from would be sponsors or an underexploited opportunity for event organisers?

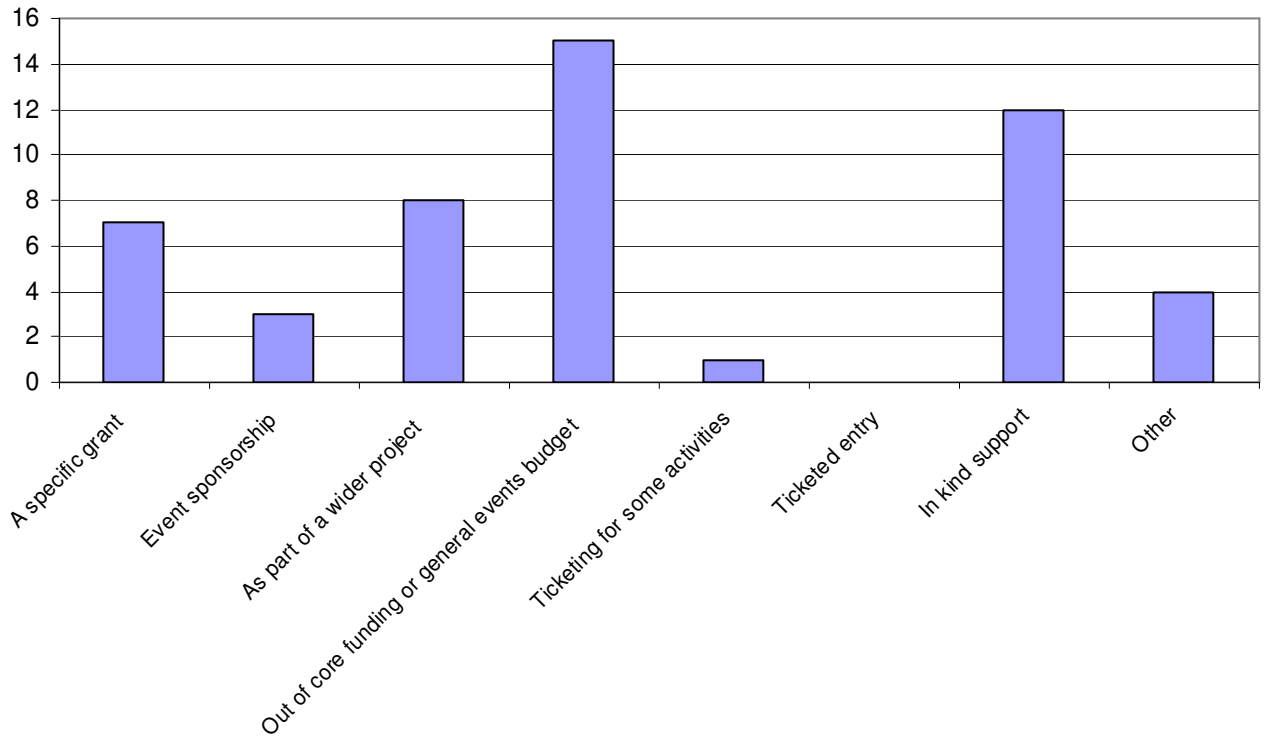


Figure 19: Funding streams for BioBlitz events, bar height indicates number of BioBlitzes recieving each form of funding

For the 13 BioBlitz events for which we have complete data, the range in total budgets is from £0 to £8,000 with approximately 45% on average being contributed as in kind support. This gives a mean total cost of £2,000 per BioBlitz including in kind support which can be extrapolated to an estimated total cost of £94,700 cash expenditure plus £73,700 in kind support.

4.7.2 Visitor spending

Revenue generating drivers were highlighted infrequently by event organisers when asked what their motivations were for running a BioBlitz. Opportunities for visitors to spend money at these events may be highly site dependant (availability of cafe/ food stalls, visitor centre/shop, etc.) and also dependant on the organisations involved (opportunities to purchase membership for example). The average spend for BioBlitz visitors per event in 2013 is £5.88. If we apply this parameter to estimated visitor numbers for 2013 we can estimate the total annual spend of BioBlitz visitors for 2013 as just under £147,000. This expenditure is heavily skewed towards events held on sites with infrastructure such as cafes and visitor centres.

4.8 Environmental outcomes

There are two main positive environmental outcomes that BioBlitz events aim to achieve: The inspiration of environmentally positive behaviour change in individuals through engagement and the contribution of biological records data to local and national datasets as a form of citizen science. The former is covered in section 4.4. The latter, whilst more easily quantified, is complicated by the variety of methods available for processing biological records. Based on queries raised during data collection, there also appears to be confusion among a significant minority of BioBlitz organisers as to what constitutes a biological record and the significance of passing on reliable data. This anecdotal evidence is supported by the large proportion of BioBlitz events (15%) that, for whatever reason, failed to pass their records on to recognised biological records repositories. The methods of data management recommended to BioBlitz organisers by the National BioBlitz Network are as follows.

- Local Environmental Records Centre (LERC): Several BioBlitzes are either run by an LERC or include one in the event partnership, otherwise LERCs can accept BioBlitz records as part of their normal service. LERCs are local repositories of environmental data and will validate the data. This validation and the production of an event report is time consuming and, as such, can be expensive .As well as using that data locally, many of them pass on data to the National Biodiversity Network (NBN) Gateway national recording scheme (www.nbn.org.uk).
- National Recording Schemes: It is also possible to send records directly to the NBN Gateway using online platforms such as iRecord. These platforms can be much slower to validate data but do offer an instantly available graphic representation of the raw data that can be shared with participants. They are also free to use although require staff/volunteer time for data entry.

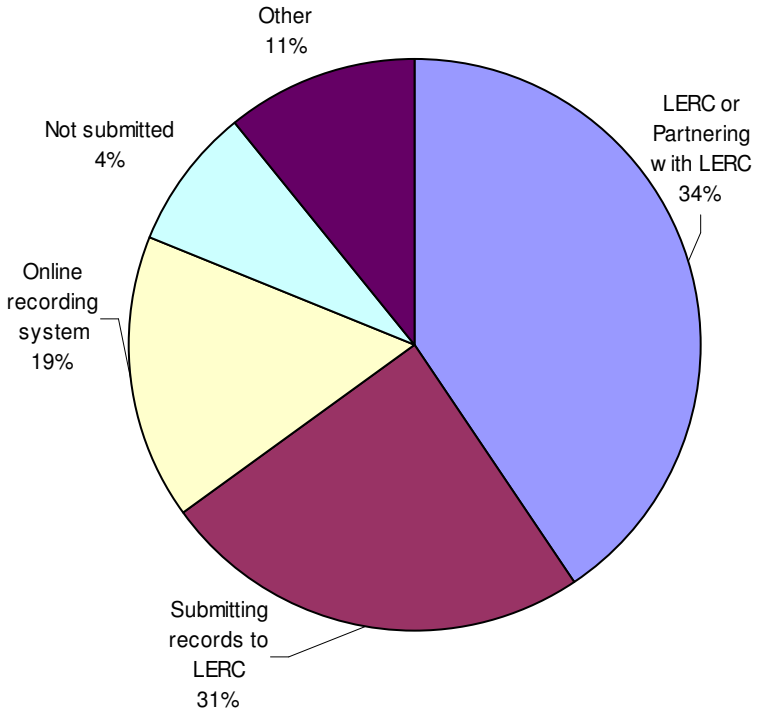


Figure 20: Methods for managing biological records generated at BioBlitz events in 2013. n=37

The diversity of methods by which BioBlitz organisers manage their biological records means that there is no single repository for BioBlitz generated data. Using a combination of data collection methods (event organiser survey, retrospective report analysis and a web search for post press articles) estimated totals were collected for around 53% of the BioBlitz events that have taken place since 2006. Where data was absent, the mean value for that year was applied.

Figure 21 displays the results. Based on the rate of records submission shown in Figure 20, we can assume that around 15% of records are not passed on to the recommended data repositories giving a net estimate of over 113,600 biological records submitted to data repositories by BioBlitz events since 2006.

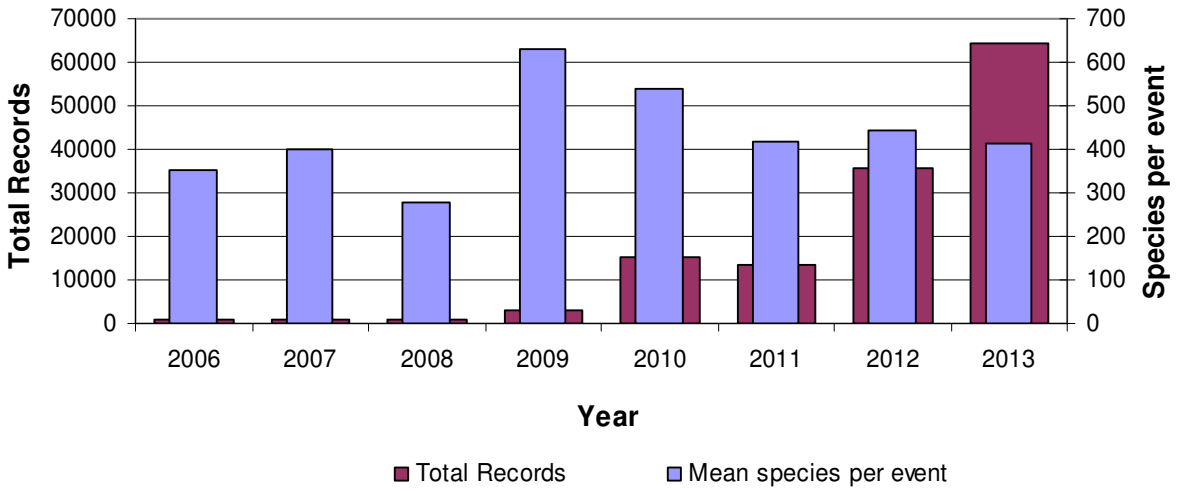


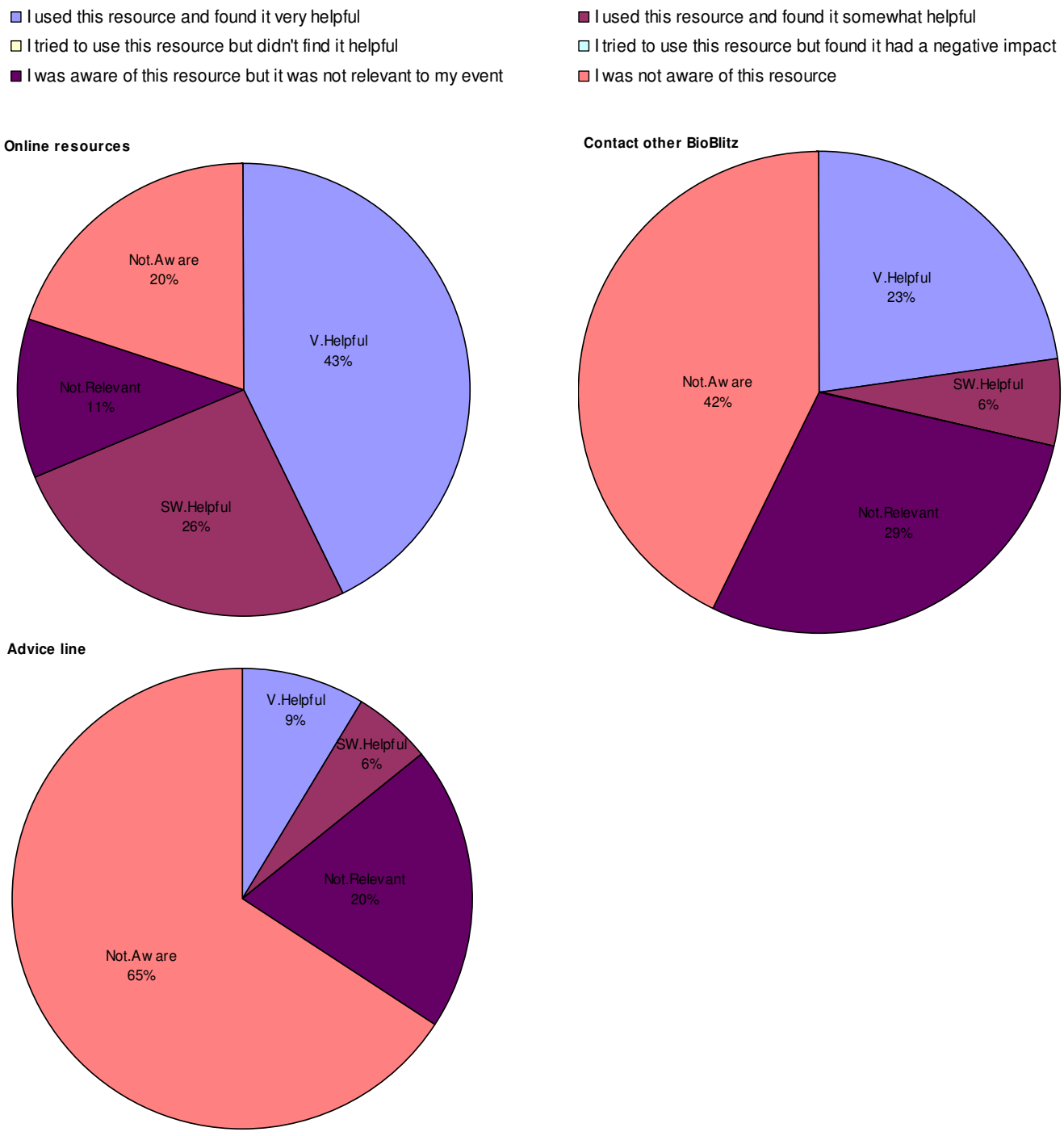
Figure 21: Estimated total species records collected at BioBlitz events since 2006 (left hand axis) and mean number of species identified per event (right hand axis)

4.9 Network activity

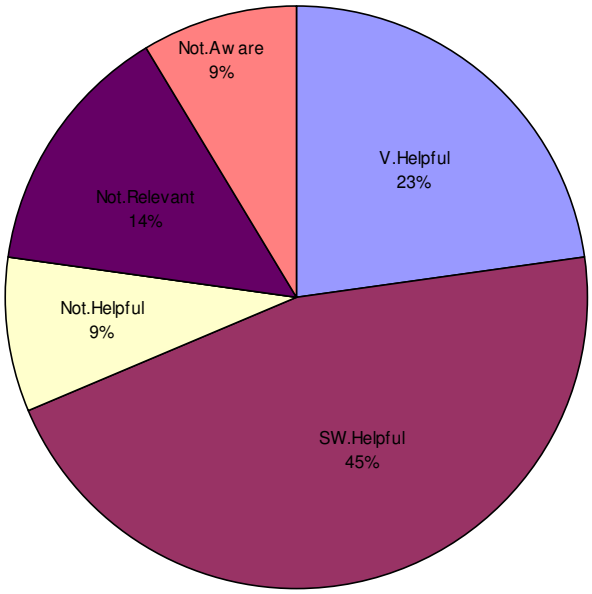
4.9.1 Network resources

Event organisers were asked to rate the helpfulness of resources offered to individual events as part of the National BioBlitz Network in 2013. There is notable diversity in the responses for each resource with some, such as the t-shirts and online directory, receiving strong positive feedback whilst others, such as the advice line, had little uptake and suffered from a lack of awareness. Whilst the BioBlitz Conference (October 2012) also appears to have suffered from obscurity, this can be explained by the high proportion of 'first-time' BioBlitz organisers among the respondents who would be unlikely to have been aware of the conference pre-2013 (70%). It is noteworthy that BioBlitz organisers are often unaware of the full range of resources available.

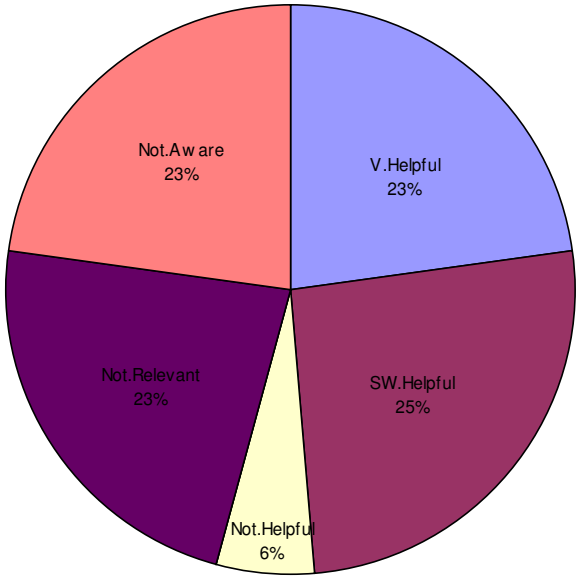
Figure 22: Event organiser feedback on resources provided by the National BioBlitz Network in 2013. n=33 (cont. overleaf)



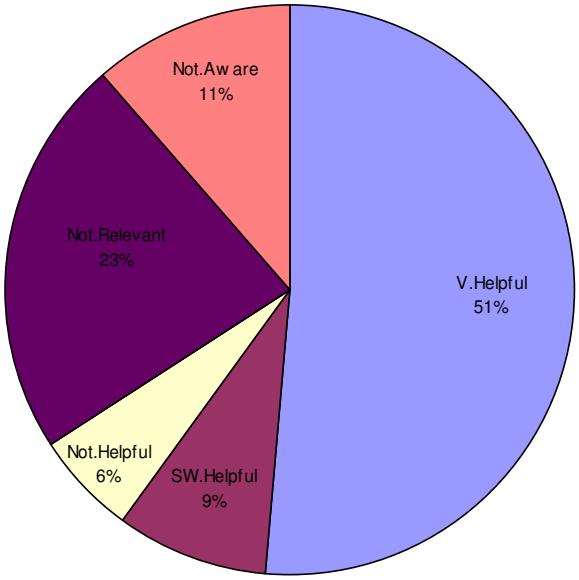
Online directory



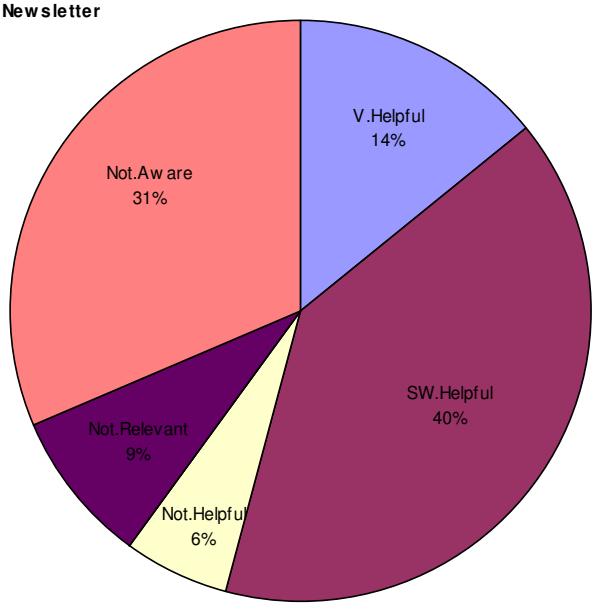
Publicity



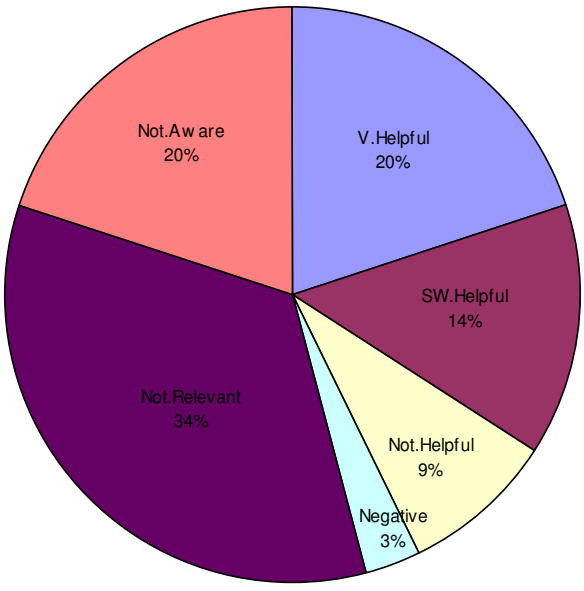
T-shirts



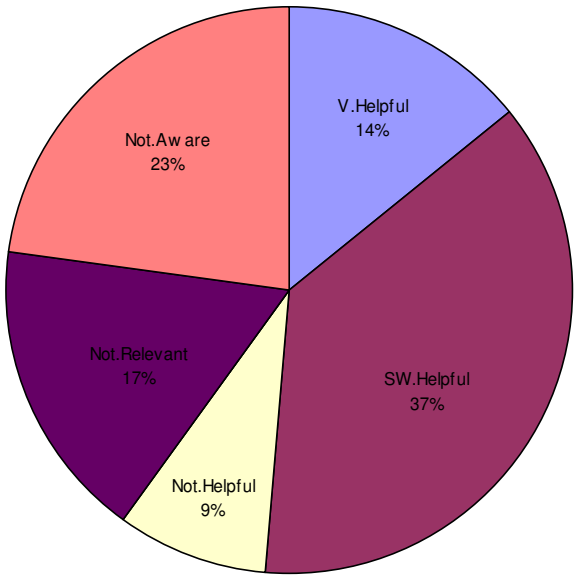
Newsletter

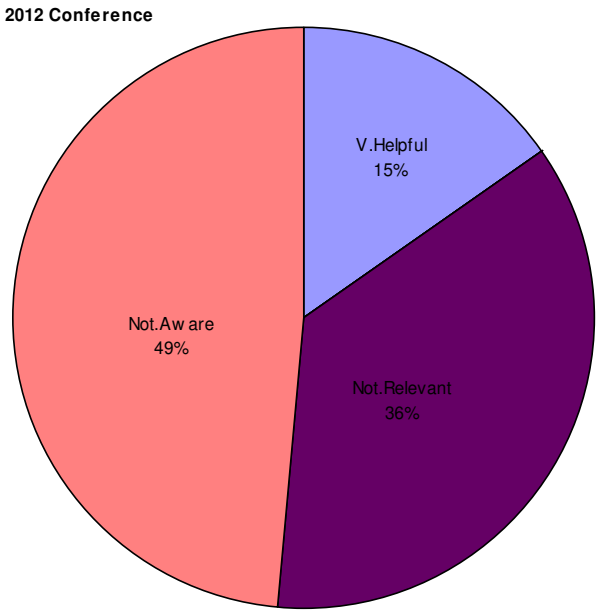


Evaluation



Social Media





4.9.2 Value of the BioBlitz Network

When asked to categorise what value the presence of the National BioBlitz Network brought to their individual events, 62% of BioBlitz organisers indicated that the network increased the success of their event or was vital in the event going ahead. The remaining 38% either noticed no difference or did not make use of the resources offered by the network. The majority of these events were not known to the network until shortly before their event took place, limiting the level of assistance available.

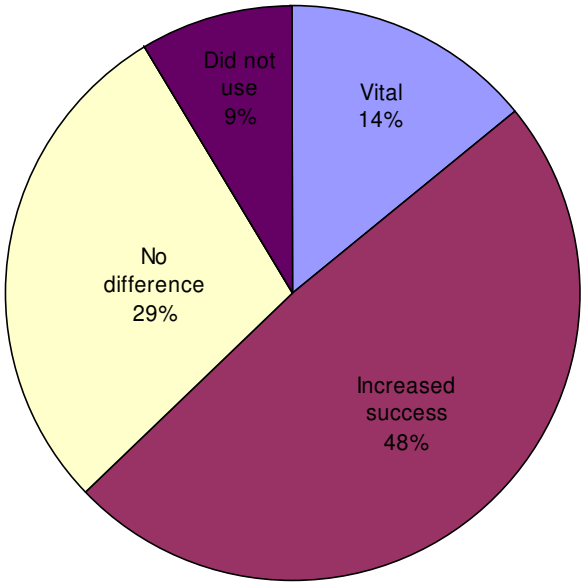


Figure 23: Perceived value. Event organisers overall assessment of the value of the BioBlitz Network to their individual event in 2013. Organisers were asked to select whether the help of the network was vital to their event going ahead, increased the success of their event, made no discernable difference to their event or they did not make use of the networks help.

Based on the estimates of participation established earlier in this report (including all BioBlitz events found by web search, not solely those registered with the network), we see a strong correlation between the level of central network management capacity (here measured as total cash budget) and the total number of participants engaged in BioBlitz activities. This supports the hypothesis that the BioBlitz network plays a role in increasing participation in these events nationally whether through recruitment of activities, promotion and/or capacity building.

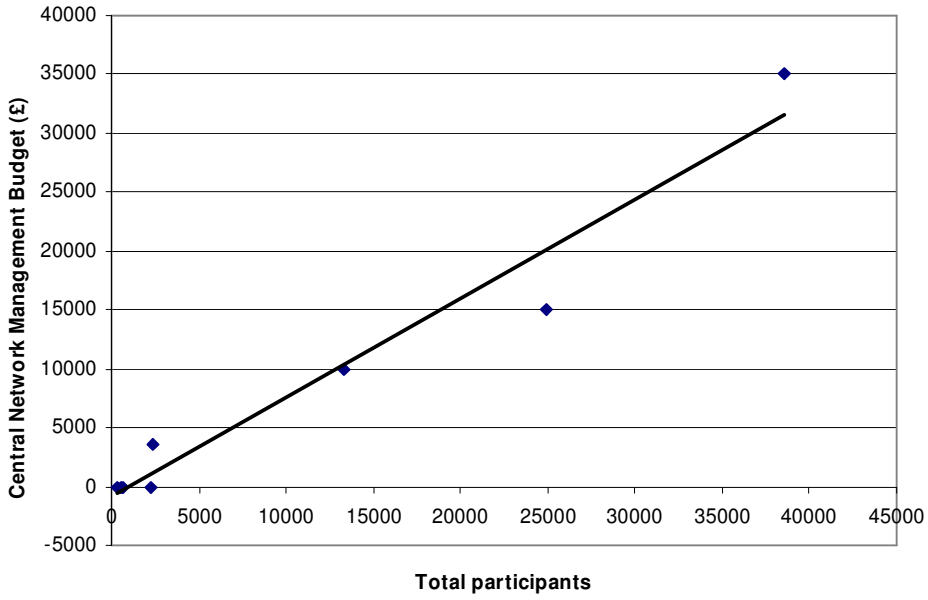


Figure 24: Graph showing the relationship between annual central network management budget and total estimated annual participation in BioBlitz events in the UK

4.10 Online activity

4.10.1 Website reach

Since April 2010 the national BioBlitz website has been hosted as part of the BNHC website, including a directory of events, downloadable resources and information for event organisers, volunteers and visitors. Each year visits to the BioBlitz website have peaked in May, the beginning of the 'BioBlitz season'. In 2013 the peak was extended, by the widely publicized 'Garden BioBlitz' in June which was almost entirely online and was featured on BBC 'Springwatch'. Figure 25 summarises the analytics data for the website since its launch in 2010.

Year	Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit
2010	26,021	20,051	00:01:28	8,804	50.60%	36.04%
2011	15,774	12,579	00:01:25	5,826	56.28%	38.79%
2012	27,767	22,099	00:01:28	10,021	55.00%	35.53%
2013	33,430	27,405	00:01:42	14,337	56.34%	42.81%

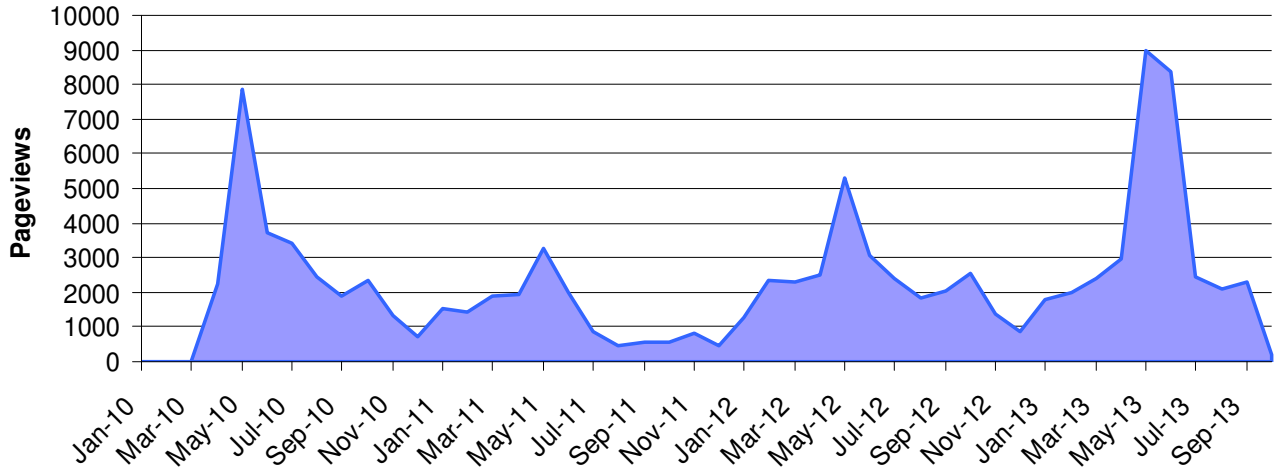


Figure 25: Monthly Page Views for the BioBlitz website for the period 01/01/2010 to 13/10/2013. More detailed data available in Appendix 0

4.10.2 Social media activity

As well as the website, BNHC host a facebook page (www.facebook.com/ukbioblitz) and twitter account (@BioBlitzUK) for the National BioBlitz Network. At time of writing, the facebook page has 274 'Likes' and the twitter account has 3,170 'followers'.

5 Critical Evaluation

5.1 Limitations of data collection: Surveys

The study experienced several barriers to data collection that impacted the sample size and therefore statistical robustness of the data. As a diffuse network of event organisers the level of engagement with the network varies significantly by event and, as such, events are self selected in the level of data collection and adherence to data collection guidelines. The methods used across the three key audiences all relied heavily on event organisers to engage with the evaluation and dedicate resources to the process. To conduct a more rigorous evaluation with larger sample sizes, event organisers need to be more effectively engaged through improved communication, incentivising and/or removal of barriers to participation such as capacity issues.

5.2 Limitations of data collection: Biological Records

The biological records data generated at BioBlitzes is diffuse both geographically and institutionally with some data being collected and processed locally by LERCs, some data being sent directly to the NBN Gateway via online platforms and some being processed locally and then passed on to the national database at NBN. There is also a significant minority that fails to reach any of these platforms. As such there is no central repository for BioBlitz generated records and, although we can assess how many records are collected at the event, it is currently impossible to assess the proportion of those records that are validated and made available as useable data.

5.3 Challenges of scope

The multifaceted nature of BioBlitz events means that a holistic approach to evaluation is highly challenging. The variety of audiences and volume of data per person required to recognise the diversity of perspectives on each event throw up a number of hurdles to gathering and processing reliable data. These include:

- Lengthy survey questionnaires - the quantity of data required to cover all elements of the events a compromise between level of detail and questionnaire length, as longer surveys tend to have fewer respondents.
- Non standard survey techniques and effort - the geographical and temporal distribution of the events meant that central evaluation performed by a core team of surveyors would be very cost ineffective, as such event organisers were tasked with recruiting and training volunteers to conduct visitor surveys as well as submitting their own feedback. This gave little central control over the either the quality of training or the level of survey effort at each event.

6 Discussions and Conclusions drawn

Based on the evidence collected in this study, we can tentatively draw the following conclusions. As previously mentioned, it is important to note that the small sample sizes involved limits the robustness of conclusions drawn from the visitor survey and they should be treated with caution. Conclusions here relate to BioBlitzes as a collective and may not necessarily reflect the outcomes of any individual BioBlitz event.

6.1 Participation

The diversity of scale among BioBlitzes covers a wide range and several key variables affect attendance at each event. Collectively, however, BioBlitzes engage large numbers of people, with an estimated 81,000 visitors and 6,700 volunteers taking part in 267 events since the beginnings of the National BioBlitz Network in 2009 (plus an additional 1,500 visitors and 70 volunteers from 7 events pre-2009).

The total annual number of participants nationwide correlates with the level of activity by the network, as the number of events and level of publicity has fluctuated year on year. This is most apparent in 2011 when central coordination of the network was not possible due to a lack of funding. In that year very few events were run with few attendees per event. Both activity and participation have grown significantly each year since 2011.

6.2 Aims and Objectives

BioBlitz events are organised with diverse but not mutually exclusive aims and objectives. By adapting the focus of their events and incorporating different activities, BioBlitz organisers can tailor their events to meet a few key aims or cast a wide net to touch on several different objectives. We can conclude from the evidence seen in section 4.3 that event organisers generally consider BioBlitz events as successful in achieving their aims to some extent with particularly successful events exceeding expectations. This qualitatively suggests that expectations are realistic and achievable in most cases, despite the diversity of motivations of event organisers. However, the difficulty of measuring the success of these events quantitatively remains a challenge.

6.3 Individual outcomes

6.3.1 BioBlitz events are enjoyable

Having fun outdoors and enjoying nature is a key step in peoples' engagement with biodiversity and conservation messages. In the often quoted words of Sir David Attenborough "No one will protect what they don't care about, and no one will care about what they have never experienced". Enthusiastic responses from visitors, volunteers and organisers indicate a high level of enjoyment among participants at BioBlitzes. Among adults, the social aspect and opportunity to learn from enthusiastic and knowledgeable people was highlighted frequently as well as the opportunity to explore and enjoy natural spaces and discover the wildlife found there. Children expressed their enjoyment more towards practical activities and direct encounters with wildlife such as pond dipping and bug hunting. These insights may prove invaluable when making decisions around marketing of events and targeting audiences for BioBlitz events in future. Both non-specialist volunteers and naturalists, whilst differing in their priorities, highlighted the opportunity to work with children and engage with members of the public.

6.3.2 BioBlitz events provide opportunities to gain knowledge

Around 90% of visitors self identified having learned something new at the BioBlitz with just over half of learning points mentioned indicating an increase in knowledge about particular species, habitats or spaces. It was outside the scope of this study to conduct follow up interviews post event and as such, we are unable to assess the level of knowledge retention beyond the event.

6.3.3 BioBlitz events provide opportunities to learn new skills

The opportunity to learn new skills was mentioned by visitors, volunteers and naturalists as a highlight of BioBlitz events with around 39% of visitors self identifying as having learned new skills or techniques as part of the event. These range from using bat detectors to identifying particular insect groups and water sampling to dry stone walling.

6.3.4 BioBlitzes engage new audiences with nature conservation

It is frequently highlighted that environmental communicators, as a sector, must not fall into the trap of 'preaching to the choir'. It is important to note that there is no hard line between 'engaged' and 'unengaged' as highlighted by Christmas (2013) who identified five tiers of engagement with biodiversity issues. Whilst the majority of participants at a BioBlitz self identify as having an existing interest (65%) or desire to get more involved (26%) in nature conservation, a significant minority (9%) of visitors self identify as having little or no knowledge of nature conservation. This is an estimated audience of 2,250 in 2013 and (if the 9% figure is taken as representative) an estimated audience of 7,900 visitors in this category taking part in BioBlitzes to date. Whilst the methods of assessment are not directly comparable, these visitors could hypothetically be placed in either Tier one (Unaware) or Tier three (low levels of daily positive behaviour). These groups, Christmas argues, should be a focus for engagement to move into Tier four (higher levels of daily positive behaviour or higher effort behaviour) or Tier five (higher levels of daily positive behaviour and higher effort behaviour).

6.3.5 BioBlitz events inspire positive action

All of the BioBlitz visitors surveyed indicated an intent to take further action as a result of their experience at the event with significant intended uptake of higher effort actions such as gardening for wildlife (43%), donating to environmental organisations (14%) and seeking volunteering opportunities (19%). It was outside the scope of this study to conduct follow up interviews post event and as such, the level of conversion from intent to action was not assessed.

This combination of individual outcomes supports the hypothesis that BioBlitz events can support delivery of Outcome 4 of the Defra Biodiversity 2020 strategy by introducing people to biodiversity issues: “By 2020, significantly more people will be engaged in biodiversity issues, aware of its value and taking positive action.” (Defra, 2011)

6.4 Community Outcomes

6.4.1 BioBlitz events can cater for all ages

Whilst individual events may target specific age groups, often families with school age children, as a collective BioBlitzes engage a wide diversity of age groups with a significant proportion (12%) of 65 and over, an age group considered to have low engagement with nature in general (Natural England, 2013). Teenagers (11-16) were the least represented in our survey sample though this may be an artefact of the methodology as this age group may have fallen into the gap between child and adults surveys. It is also possible that this age group is less likely to take part in a BioBlitz event, similarly falling between child and adult targeted activities.

6.4.2 BioBlitz events are not currently engaging those of Black and Minority Ethnic (BME) backgrounds

This study was unable to capture visitor data from any members of BME cultures at the events studied. Whilst anecdotal accounts suggest that the reality is less extreme, such disparity in engagement should be addressed. BME groups are highlighted as less likely to engage with nature by the Monitor of Engagement with the Natural Environment (MENE) citing cultural, geographic and communications barriers (Natural England, 2013). Whilst this study can not determine which factors prevent members of these groups from visiting BioBlitz events, it has highlighted both a challenge and an opportunity to engage these groups through targeted activities and marketing.

6.4.3 BioBlitz events provide outdoor learning for schools, but at a limited scale

Inviting school groups to take part in a BioBlitz can be a highly rewarding part of the event, providing structured outdoor learning and experience of field skills for the children whilst offering a guaranteed attendance and engagement opportunity for the event organiser. However, organising schools activities is a different challenge to a public event and requires a more structured approach to guarantee that the learning requirements and expectations of schools, with limitations of curriculum, finance and time out of class, are met. 13% of BioBlitz events in 2013 ran schools activities with an average of 150 school children taking part per event. Identifying and addressing the barriers to event organisers for running schools activities at BioBlitzes may unlock a great deal of potential for outdoor learning through this format.

6.5 Economic Outcomes

6.5.1 Funding BioBlitz events

BioBlitz events are often funded out of core costs and/or in-kind support and are not generally seen as a revenue generating opportunity for event organisers. The National BioBlitz Network discourages event ticketing and almost all BioBlitz events are free to take part in. Exceptions include sites where entry fees apply (i.e. visitor attractions) but activities are free or where certain activities incur a materials cost which is passed on to visitors who choose to take part in that activity (e.g. build a bird box).

BioBlitz events are rarely funded through event sponsorship. Could corporate sector funding contribute more to such an event format that has the potential to lend itself very well to sponsorship? Is this trend due to event organisers not recognising sponsorship as a potential funding stream? Do they lack the skills necessary to

successfully approach potential sponsors? Is industry simply not interested in BioBlitz? Or is this a reflection of the scale of individual events, with audiences too small to be sufficiently attractive marketing opportunities for potential sponsors? Further research is needed to answer these questions.

Visitor spending at BioBlitz events may help to recoup some costs with an average spend of £5.88 per visitor, totalling an estimated £147,000 in 2013. However, retail and membership opportunities at events are restricted by available infrastructure and, as it was outside the scope of this study to track spending patterns in detail, we do not know what proportion of the revenue is captured by the host organisation as apposed to external vendors (except on sites with exclusive cafe and/or visitor centre facilities).

6.6 Environmental Outcomes

6.6.1 BioBlitz events collect a lot of data

From this study we estimate that BioBlitz events have contributed over 113,000 species records to local and national biodiversity recording schemes since the first event in 2006. To put that figure into context, this is roughly equivalent to a decade of surveying effort by a single, dedicated naturalist.

With no single repository for BioBlitz data, and in the absence of a 'tagging' system identifying records that come from BioBlitz events, it is not currently possible to establish the proportion of these records that are of sufficient quality to be verified and contributed to national databases. We estimate that 15% of all records collected at BioBlitzes fail to be submitted at all, a potential 20,000 records since 2006.

The highly localised approach of records collection in the UK has many advantages (See ALERC, 2013 for more information). It has, however, left a legacy of data fragmentation (slowly being resolved using technology to collate local databases in central repositories such as the National Biodiversity Network (NBN) Gateway) and technological incompatibility between regions. Attempts to establish some uniformity across the recording community have yet to yield a national consensus, however may provide opportunities in future to track records generated at BioBlitz events more effectively to establish their value to end users.

6.7 Additional Outcomes

6.7.1 BioBlitz events foster relationships

The collaborative nature of BioBlitz can help to facilitate and foster partnerships and networking within and between sectors locally. Over 300 different organisations took part in BioBlitz events in 2013 representing the charitable, public and private sectors (in order of prevalence) and the most frequently cited additional outcome for event organisers was networking with local naturalists and partner organisations.

6.8 Network Activity

BioBlitz as a concept is now firmly established and growing in popularity in the environmental public engagement sector in the UK with significant increases in the number of events being run each year over the last two years. The number of events and total level of public participation in events correlates with the level of capacity of the central community management project for the network (see Figure 24) supporting the hypothesis that the

activity of the network (in promotion, recruitment of event organisers and capacity building) has a positive effect on participation in BioBlitz events nationwide.

The National BioBlitz Network is valuable to event organisers in maintaining an institutional memory and supporting new event organisers (62% of BioBlitz organisers indicated that the network increased the success of their event or was vital in the event going ahead). However, this support is not reaching it's full potential due partly to a lack of awareness among BioBlitz event organisers (on average any particular resource on offer was unknown to around a third of event organisers). This is likely to stem from the inherent challenge of communication within a geographically diffuse and institutionally diverse fluid network such as this. The composition of organisations and individuals running BioBlitz events across the country is constantly changing and expanding whilst the capacity of central community management remains fixed, reducing the time available for engaging individual event organisers and facilitating discussion between stakeholders. A more efficient method of cascading information is required to address this difficulty.

7 Recommendations

Continue to support BioBlitz as a platform for public engagement with nature and build on the existing BioBlitz community

Improve communication and sharing of best practice within the network as it continues to expand

Initiate monitor of biological records quality and tracking of end destination

Support event organisers to attract more diverse audiences locally

Support event organisers in funding their BioBlitz events through sponsorship and other means

Support event organisers in engagement with schools

Raise awareness of the available resources among the BioBlitz community

Build capacity for evaluation data collection to monitor the quality of engagement

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9 Appendices

9.1 History of UK BioBlitz events

BioBlitz	Place	Date	Organisation	Volunteers	Attendees	Species	Records
Banovallum House	Horncastle	07/07/2006	Lincolnshire Biodiversity Partnership	10	250	263	265
Colwick Country Park	Nottinghamshire	01/07/2006	Nottinghamshire Biodiversity Action Group			441	441
Banovallum House	Horncastle	08/06/2007	Lincolnshire Biodiversity Partnership	10	326	325	323
Dalzell Estate	Motherwell	22/07/2007	BRISC		350	478	478
Banovallum House	Horncastle	16/05/2008	Lincolnshire Biodiversity Partnership	10	100	357	356
Maenporth	Cornwall	12/06/2008	Falmouth Marine School			200	200
Rufford Abbey Country Park	Nottinghamshire	11/07/2008	Nottinghamshire Biodiversity Action Group				
Ashton Court	Bristol	26/06/2009	BNHC	49		637	637
Banovallum House	Horncastle	10/07/2009	Lincolnshire Biodiversity Partnership	10	140	476	716
Colvend	Dumfries and Galloway	07/08/2009	Dumfries & Galloway Environmental Resources Centre and Scottish Wildlife Trust	7	70	408	861
Wembury BioBlitz	South Devon	21/08/2009	The Marine Biological Association of the UK	100	1500	1000	1000
Blaise Estate	Bristol	21/05/2010	Bristol Natural History Consortium	180	4280	536	
	Ireland	21/05/2010	National Biodiversity Centre				
New Forest BioBlitz	New Forest National Park	21/05/2010	New Forest National Park Authority	43	400	415	
	Northumberland	21/05/2010	Northumberland Biodiversity Network	16		357	
	Swansea	21/05/2010	Swansea City Council	69	65	94	
	Cairngorms	22/05/2010	Cairngorms Biodiversity				
	Dundee	29/05/2010	Dundee City Council	9	65	240	
Watergate Country Park		31/05/2010			1600	653	
	Leicester	30/05/2010	Leicester City and County Council	20	1200	601	
	Isle of Wight	02/06/2010	Isle of Wight Council	60	425	436	
	Derby	05/06/2010	Derby City Council	60	2350	641	
Alexandra Palace BioBlitz	London	05/06/2010	OPAL, NHM, BBC Springwatch	63	8000	730	
	Brighton	06/06/2010	Sussex Wildlife Trust	50	1200	684	
Mothecombe BioBlitz	Devon	11/06/2010	OPAL, NHM, BBC Springwatch	14	600		
	Jersey	11/06/2010	Durrell Wildlife Conservation Trust				
	Manchester	11/06/2010	Manchester Museum				
	Fife	25/06/2010	Fife Coast and Countryside Trust and Celebrating Fife 2010				
Cambridge Botanic Garden	Cambridge	02/07/2010	Cambridge University	200		562	
Ashington Community Woodland	Ashington	04/07/2010				428	494
Banovallum House, Horncastle	Lincolnshire	09/07/2010	Lincolnshire Wildlife Trust	22	100	565	577
Rushcliffe Country Park	Nottingham	18/07/2010	Nottinghamshire Biodiversity Action Group	34		655	
Wepre Park	Flintshire	31/07/2010	Flintshire County Council	65			
	North Ayrshire	01/08/2010	North Ayrshire Council	77	1500	898	
Curden Valley Park	Lancashire	07/08/2010	Lancashire Wildlife Trust	77	1500	898	
Romney Marsh BioBlitz	Kent	12/08/2010	Kent Wildlife Trust				
Corfe Mullen	Dorset	28/08/2010	Corfe Mullen Nature Watch	20	70	762	762
	Cornwall	04/09/2010	ERCCIS		52		
Hambrook Marshes	Canterbury	23/10/2010	Canterbury University	20	6	98	317
Abbey Park		09/06/2011				506	
CCCU Canterbury Campus	Canterbury	19/03/2011	Canterbury Christ Church University	122	4	149	225
Tyntesfield Estate	Bristol	20/05/2011	BNHC			779	
Sharpham Estate	Devon	20/05/2011	Ambios		96	370	420
Brankley Pastures Reserve	Staffordshire	22/05/2011					
Corfe Mullen	Dorset	28/05/2011	Dorset Wildlife Trust	20	100		
Broughty Ferry Local Nature Reserve BioBlitz	Dundee	29/05/2011					
Brading Down	Isle of Wight	01/06/2011					
Norton Priory BioBlitz	Cheshire	04/06/2011	Cheshire Active Naturalists	100	440	1000	2384
Lydiard Park BioBlitz	Swindon	04/06/2011					
Hambrook Marshes	Canterbury	06/06/2011	Canterbury Christ Church University	79		153	
Copplestone School	Devon	17/06/2011	Ambios		99	238	334

BioBlitz	Place	Date	Organisation	Volunteers	Attendees	Species	Records
Bystock Pools Nature Reserve	Exmouth	25/06/2011	Exmouth Wildlife Watch Group				
Chew Valley Lake	Chew Valley	01/07/2011	Avon Wildlife Trust	50	120	552	
Harpurhey Reservoirs and Ponds	Manchester	16/07/2011	Buglife	20	50	353	472
Cambridge University Botanic Gardens.	Cambridge	22/07/2011					
	Ynys-hir	06/08/2011	RSPB				
Daisy Nook Country Park	Failsworth	21/08/2011					
the Raggatt between Peel and Patrick	Isle of Man	28/08/2011					
Mount Edgcumbe	Cornwall	30/09/2011	The Marine Biological Association of the UK				
Reculver near Herne Bay	Reculver	01/10/2011	Canterbury Christ Church University	87	10	150	188
Newquay College	Newquay	23/03/2012	Newquay College				
National Trust Llanerchaeron	Ceridigion	31/03/2012	National Trust	17	40	201	150
Walsall Part 1 - Spring	Walsall	21/04/2012	Walsall Council, Black Country Biodiversity Group, the RSPB Walsall Group, the West Midland Bird Club, the Sandwell Naturalists Club, OPAL, BrumBats and the Wildlife Trust for Birmingham & the Black Country				
Weston Park BioBlitz	Sheffield	01/05/2012	Sorby Natural Hisory Society			1000	
Kingston Hill campus	London	05/05/2012	Kingston University	7	0	102	
Dartmoor Zoo BioBlitz	Devon	11/05/2012	Dartmoor Zoo				
Hoopern Valley	Exeter	12/05/2012	Exeter University				
Northern Ireland	Northern Ireland	18/05/2012	NMNI				
The Greenhouse', Dingwall	Dingwall	19/05/2012					
Westquarter Glen	Falkirk	19/05/2012	Westquarter Wildlife Group				
Lower Wallop Farm	Shropshire	22/05/2012	OPAL				
New Forest National Park	New Forest	24/05/2012	New Forest npa	3	300	552	
Belfast Hills BioBlitz	Belfast	25/05/2012	Belfast Hills Partnership	13	110	390	
Arnos Vale Cemetery	Bristol	25/05/2012	BNHC	35	800	478	
Evington Park	Leicester	25/05/2012	Leicester City council	30		467	
The Cuddy, Eddleston Water	Scots Borders	25/05/2012	Cuddy Action Group				
Fort Amherst	Chatham	26/05/2012	Canterbury Christ Church University	71	8	167	237
Cemlyn BioBlitz	Anglesey	02/06/2012	wildlifetrustwales/cofnod	5	75	330	661
Avalon Marshes	Shapwick	03/06/2012	Natural England				
Flamingo Land	Malton, North Yorkshire	04/06/2012	Flamingo Land				
Thorners Discovery Area Mini BioBlitz	Dorchester	08/06/2012	Dorset Wildlife Trust	4	35	50	
Sutton Ecology Centre	Sutton	09/06/2012	Biodiversity Gardens Project				
St Swithuns	Winchester	10/06/2012	Worthy's conservation volunteers				
York's Museum Gardens	Yorkshire	15/06/2012	Yorkshire Museum, OPAL, Natural England, North & East Yorkshire Ecological Data Centre (NEYEDC) York University + local groups				
Woodside Nature Reserve	Derbyshire	16/06/2012	Derbyshire WT				
Chantry Park	Ipswich	16/06/2012	Ipswich Borough Council Parks & Open Spaces department				
Court Hey Park	Merseyside	16/06/2012	Ispot, Merseyside BioBank, National Wildflower Centre	8	120	346	
Tremough Campus BioBlitz	Nr Falmouth	16/06/2012	University of Falmouth -students	65	500	600	600
Norbury Park	Surrey	16/06/2012	Surrey WT	50	300	456	
Walsall Part 2 - Summer	Walsall	16/06/2012	Walsall Council, Black Country Biodiversity Group, the RSPB Walsall Group, the West Midland Bird Club, the Sandwell Naturalists Club, OPAL, BrumBats and the Wildlife Trust for Birmingham & the Black Country				
Watchtree Nature Reserve	Cumbria	17/06/2012	Carlisle Natural History Society, Cumbria Biodiversity Data Centre and Tullie House Museum and Art Gallery Trust				
Cambridge Botanic Garden	Cambridgeshire	22/06/2012	University of Cambridge				
Paignton Zoo	Devon	22/06/2012	Paignton Zoo				
Science City Oxford	Oxford	22/06/2012	Science Oxford, OPAL, Oxford City	50	230	777	

BioBlitz	Place	Date	Organisation	Volunteers	Attendees	Species	Records
			Council, Thames Valley Environmental Records Centre, and BBOWT				
Dinosaur Adventure	Norfolk	23/06/2012	Africa Alive!	60	800	699	
Ramsay Island	Ramsay Island	24/06/2012	RSPB		100		
Elba Park	Sunderland	29/06/2012	Groundwork				
Abbots Leigh Mini-BioBlitz	Bristol	30/06/2012	ALWG				
Maentwrog	Gwynedd	30/06/2012	Cymdeithas Edward Llwyd/Cofnod				
Ranscombe Farm BioBlitz	Kent	30/06/2012	Ranscombe farm				
Silwood Park	Berkshire	01/07/2012	Imperial College London	20	100	500	
Seven Lochs Wetland Park	Glasgow	04/07/2012	BTCV				
Garden Bioblitz	Nationwide	04/07/2012		15	75	809	
Stackpole Estate	Pembrokeshire	04/07/2012		18	220	386	
Whisby Nature Park	York	04/08/2012	lincs Wildlife Trust, Lincs Nat's Union, Lincs Biodivesity Partnership	10		278	278
Meet the Species BioBlitz Weekend	Westquarter Glen	04/07/2012		10	312	308	
RSPB Dovestone	Dovestone	06/07/2012	RSPB				
Rutland	Leicester	06/07/2012	Leicestershire and Rutland Wildlife Trust				
Cawsand Bay	Devon	07/07/2012	MBA			1068	
Barnet Countryside Centre	Barnet	13/07/2012	Friends of Barnet Countryside Centre				
Ewelme Watercress Farm	Chilterns	13/07/2012	Chiltern Society		64	593	
Bodelwyddan Castle	Conwy	15/07/2012	Bodelwyddan Castle	7	35	454	
Moelyci Environmental Centre	Bangor	20/07/2012	Moelyci Environmental Centre				
Wicken Fen	Cambridgeshire	20/07/2012	National Trust	5	120	919	
Trial Garden BioBlitz	UK	21/07/2012	Dorset Wildlife Trust		24		
Great Fen BioBlitz	Cambridgeshire	21/07/2012	Great Fen Team	15	180	1077	1077
College Lake Nature Reserve, Tring	Buckinghamshire	28/07/2012	BBOWT	25	250	335	
	Sutton	02/08/2012	Sutton Ecology Centre			50	
Queen Elizabeth Country Park	Hampshire	11/08/2012	Hampshire Council				
RSPB Marshside	Southport	11/08/2012	RSPB				
Hengistbury Head	Bournemouth	12/08/2012	Bournemouth Borough Council				
Dalby Mountain Reserve	Isle of Man	12/08/2012	Manx Wildlife Trust	0	20	146	
Free Rangers Forest School	Cam Valley	25/08/2012					
Walsall Part 3 - Nocturnal	Walsall	25/08/2012	Walsall Council, Black Country Biodiversity Group, the RSPB Walsall Group, the West Midland Bird Club, the Sandwell Naturalists Club, OPAL, BrumBats and the Wildlife Trust for Birmingham & the Black Country				
Park Gate, Neston	Cheshire	31/08/2012	Merseyside BioBank, RSPB, Butterfly Conservation	20	300	369	932
Pentillie Estate	Cornwall	21/09/2012	Cordiale project	6	300	180	
Walford College	Shropshire	22/09/2012	Shropshire Mammal Group	30	40	180	
Osterley Park	West London	22/09/2012	National Trust				
Dane Valley Woods	Margate	29/10/2012	Canterbury Christ Church University	30	15	117	145
Jimmys Farm Nature Festival	Jimmys Farm	16/03/2013	Jimmys Farm				
Tamar Valley BioBlitz	Pentillie Estate	06/04/2013	Tamar Valley AONB	19	150	300	150
Bristol BioBlitz at Kings Weston	Kings Weston Estate	03/05/2013	KWAG - local action group,ExtraVerte - Community project managers, BNHC	53	292	463	1100
Sandford BioBlitz	Sandford School	10/05/2013	Ambios Ltd				
Penglais Campus	Aberystwyth University Campus	11/05/2013	Aberystwyth University				
Aylestone Meadows	Leicester	17/05/2013	Leicester City Council	57	1000	485	485
Darland Banks	Gillingham	17/05/2013	Canterbury Christ Church University	45	5	167	167
Belfast Hills BioBlitz	National Trust Divis Black Mountain	17/05/2013	Belfast Hills Partnership	23	0	273	273
Sheffield BioBlitz	Shire Brook Valley	21/05/2013	SCC Parks and Countryside Ranger Service				
Leeds BioBlitz	Leeds	22/05/2013	Groundwork				
Birmingham BioBlitz	Sutton Park	24/05/2013	Birmingham Council				
Stanpit Marsh Nature Reserve	Christchurch, Dorset	25/05/2013	Christchurch Council's Countryside Service			400	
Pembrokeshire BioBlitz	Pembrokeshire	25/05/2013	National Trust				

BioBlitz	Place	Date	Organisation	Volunteers	Attendees	Species	Records
Caldicot BioBlitz	Caldicot Castle Country Park	31/05/2013	Monmouthshire Environment Partnership Board, Monmouthshire Countryside Service, Gwent Wildlife Trust, South East Wales Biological Records Centre	5	206		214
Cookstown BioBlitz	Lissan House Demense	31/05/2013	Ballinderry River				
Dinosaur Adventure BioBlitz	Lenwade, Norfolk	01/06/2013	Africa Alive!	10	1000	241	
Garden BioBlitz	Gardens UK wide	01/06/2013			100	2491	23065
Crewe BioBlitz	Dane Meadow	07/06/2013	Friends of Dane Meadow	70	5	100	
New Milton BioBlitz	Hampshire	07/06/2013	Newforest National Park				
Pittenweem BioBlitz, Fife	Kellie Castle & Gardens	07/06/2013	Fife Council				
Milford-on-Sea BioBlitz	Milford-on-Sea	07/06/2013	Newforest National Park				
New Forest BioBlitz	Roydon Woods	07/06/2013	Newforest National Park				
University of Reading BioBlitz	Whiteknights Campus	07/06/2013	University of Reading				
Brighouse Bay BioBlitz	Dumfries and Galloway	07/06/2013	Solway Firth Partnership's Making the Most of the Coast project, Scottish WT and DGERC	16	47	531	1193
Kimmeridge Bay BioBlitz	Kimmeridge Bay	08/06/2013	Dorset Wildlife Trust	29	42	320	320
Poole BioBlitz	Dorset	08/06/2013	Bournemouth University	20	250	229	
Lake District Coast Aquarium BioBlitz	Lake District Coast Aquarium	14/06/2013					
Beale Park BioBlitz	Reading	14/06/2013	Beale Park				
Edinburgh Zoo BioBlitz	Edinburgh Zoo	14/06/2013	Edinburgh Zoo	15	88	142	142
Galloway Wildlife Conservation Park BioBlitz	Galloway	14/06/2013	Galloway Wildlife Conservation Park				
Finglandrigg Wood NNR	North Cumbria	14/06/2013	Solway Wetlands Partnership, Cumbria Biodiversity Data Centre and Natural England				
Leicestershire BioBlitz	Woodhouse Eaves	14/06/2013	Woodhouse Eaves Heritage Wardens	10	200	640	1590
WWT Arundel BioBlitz	WWT Arundel	14/06/2013					
Wildwood BioBlitz	Wildwood discovery park	15/06/2013	BIAZA				
Newquay Zoo BioBlitz	Newquay Zoo	15/06/2013	BIAZA				
Colchester Zoo BioBlitz	Colchester Zoo	15/06/2013	BIAZA			299	299
Old Macdonalds Farm Mini-BioBlitz	Brentwood	15/06/2013	BIAZA	3	147		
Lake District BioBlitz	Eycott Hill and Naddle Crags SSSI	15/06/2013	Cumbria Wildlife trust				
Milton Keynes Biolitz	Stony Stratford Nature Reserve	15/06/2013	The Parks Trust	15	25	502	502
Ballinderry River	Ulster	15/06/2013	Ulster Wildlife Trust		100	700	700
West Midland Safari Park BioBlitz	West Midland Safari Park	15/06/2013	West Midland Safari Park	7		78	78
Westquarter Glen Mini-BioBlitz	Westquarter Glen	15/06/2013					
Surrey BioBlitz at Wisley Common	Wisley Common	15/06/2013	Surrey Wildlife Trust	30	300	475	
Camarthernshire BioBlitz	WWT National Wetland Centre Wales	15/06/2013	WWT	15	200	410	700
Siccaridge Wood nature reserve, Sapperton	Gloucestershire	16/06/2013	Gloucestershire Wildlife Trust, Gloucestershire Naturalists Society and Gloucestershire Centre For Environmental Records				
Wilton Park Lodge	Hawick	16/06/2013		16	99	267	325
Darlington BioBlitz at Foxglove Covert	Foxglove Covert LNR	20/07/2013	Foxglove Covert Local Nature Reserve	50	352	618	
Edinburgh Botanic Gardens BioBlitz	Edinburgh	21/06/2013	Royal Botanic Gardens Edinburgh				
Whitby Centenary BioBlitz	Whitby Nature Park	21/06/2013	Whitby Naturalists Club		500	634	
Middlesborough BioBlitz	Berwick Hills nature reserve, Middlesbrough	22/06/2013	Boro Becks Project (organisers) Tees Valley Wildlife Trust (hire of experts to lead activities)	4	60	204	204
Basingstoke BioBlitz	Black Dam and Crabtree	22/06/2013	Basingstoke and Deane Borough Council	17	300	273	350
Dartmoor Zoo BioBlitz	Dartmoor Zoological Park	22/06/2013	BIAZA				

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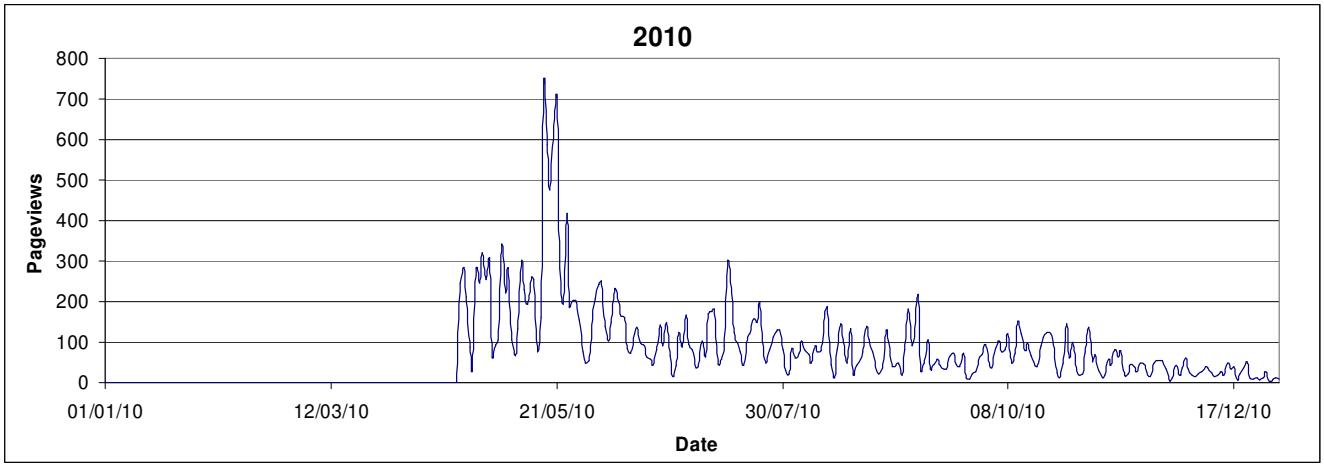
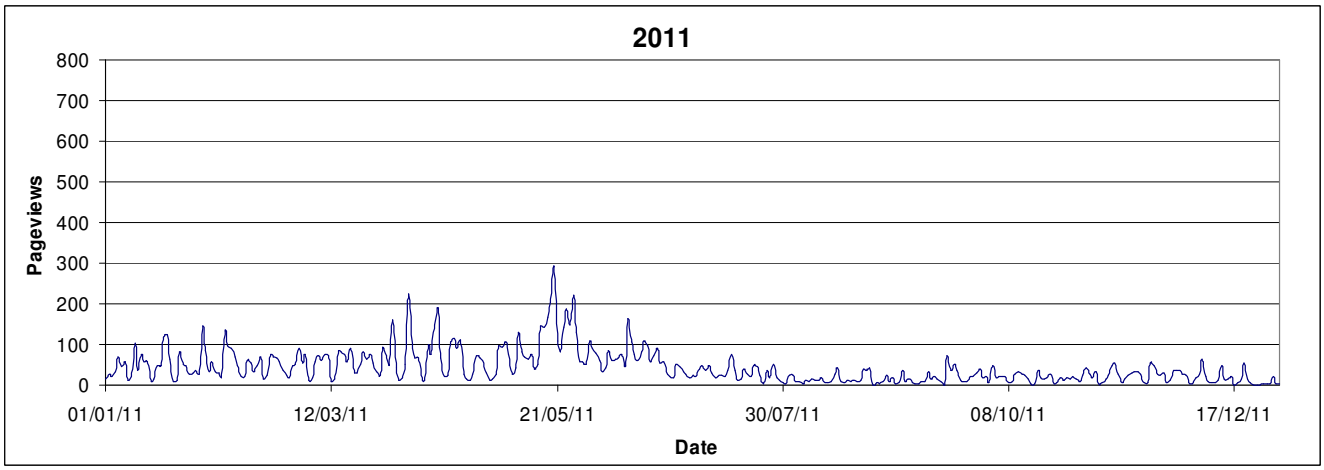
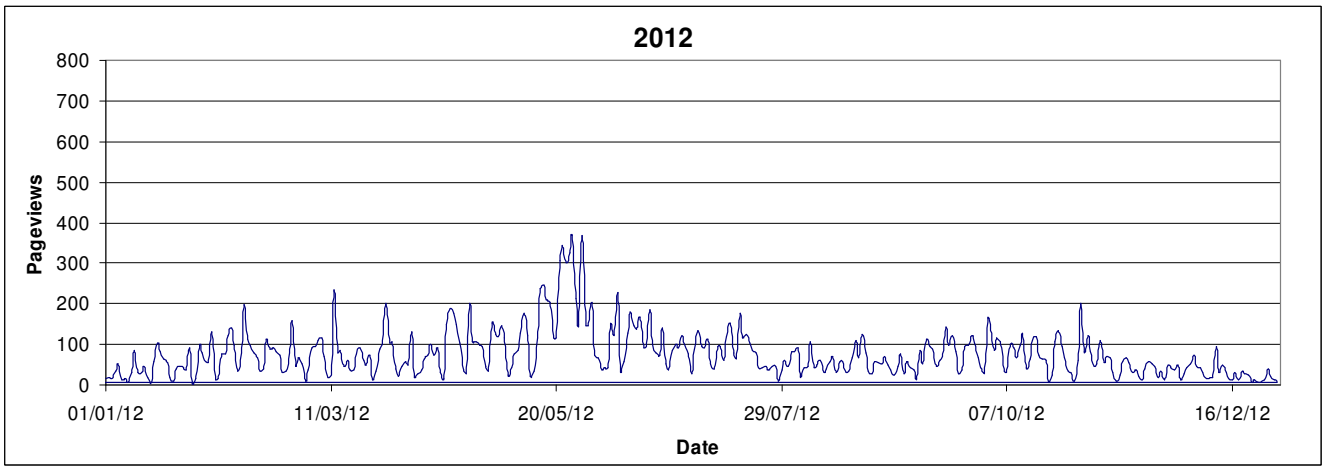
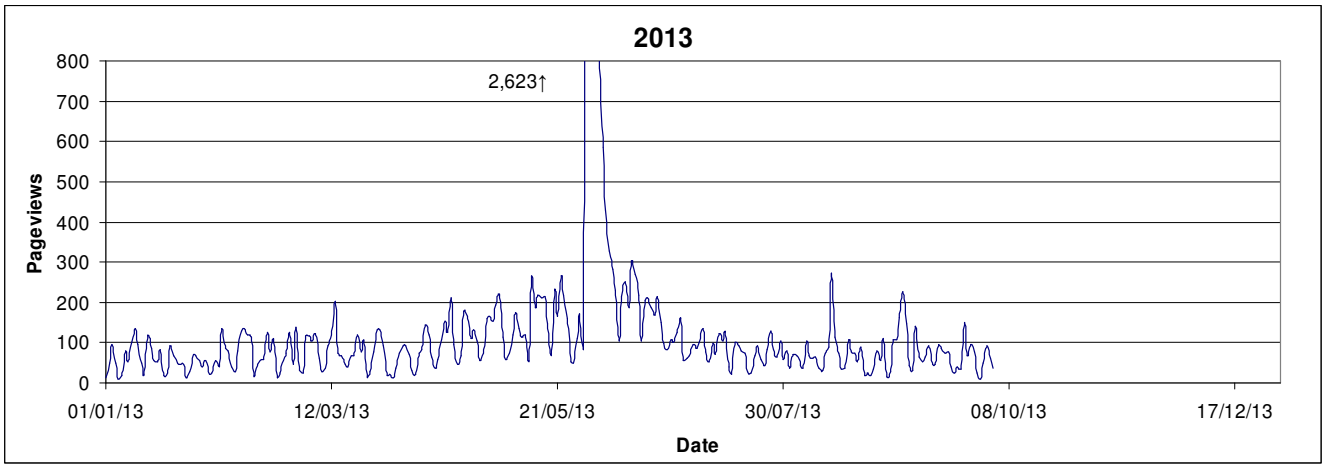
BioBlitz	Place	Date	Organisation	Volunteers	Attendees	Species	Records
Holyhead BioBlitz	RSPB South Stack Nature Reserve	22/06/2013	Cofnod LRC			260	429
Looe BioBlitz, Cornwall	Looe Voluntary Marine Conservation Area	23/06/2013	Marine Biological Association and CWT				
Hill of Tarvit BioBlitz, Fife	Hill of Tarvit Mansionhouse & Garden	28/06/2013	Fife Council			102	132
Surrey BioBlitz at Leith Hill	Rhododendron Wood, Leith Hill	28/06/2013	Surrey Biodiversity Information Centre, National Trust	15	50	450	438
North Warwickshire BioBlitz	Daffern's Wood and Kingsbury Meadows	29/06/2013	Friends of Daffern's Wood	4	5	461	598
Brimham BioBlitz	Brimham Rocks	05/07/2013	Yorkshire Dales Environment Network				
Cotswolds BioBlitz	Buckholt Wood and Cranham Common	05/07/2013	Natural England				
Geltsdale BioBlitz	Geltsdale RSPB Reserve	06/07/2013	RSPB				
Anglian Water Birdwatching Centre	Rutland Water Nature Reserve	06/07/2013	Rutland Water				
Barstobrick BioBlitz	Dumfries and Galloway	12/07/2013	Dumfries & Galloway Environmental Resources Centre and Scottish Wildlife Trust	20	94	445	958
Botley Park	Oxford	12/07/2013	Science Oxford	50	2500	393	553
Lincolnshire BioBlitz	Whisby Nature Park	12/07/2013	Lincolnshire Naturalists' Union; Lincolnshire Wildlife Trust and Greater Lincolnshire Nature Partnership			780	
Wicken Fen BioBlitz	Wicken Fen NNR	12/07/2013	The National Trust	8	200	900	
Amelia Farm BioBlitz, Barry	Amelia Farm Trust, Five Mile Lane, Barry, Wales	27/07/2013	Amelia Farm Trust	5	4	50	50
South Uist BioBlitz	Howmore, South Uist	27/07/2013	Island News and Advertiser				
Mobberley Conservation Area	Cheshire East	01/08/2013	RECORD			200	
Woolley Firs Centre	Maidenhead	01/08/2013	Woolley Firs Environmental Education Centre	40			
Sutton BioBlitz	Sutton Ecology Centre	02/08/2013	London Borough of Sutton, Sutton Nature Conservation Volunteers, Friends of Sutton Ecology Centre, Beddington Bird & Farmlands Group, iSpot (various stallholders too)	10	360	200	300
Swanage BioBlitz	Durlston Country Park	10/08/2013	Durlston Country Park				
Hampshire BioBlitz	Queen Elizabeth Country Park	11/08/2013	Queen Elizabeth Country Park	50	150	580	1367
Raptor Foundation BioBlitz	Huntingdonshire	11/08/2013	Raptor Foundation				
Tottenham Green Mini BioBlitz	Tottenham Green	17/08/2013	Seven Sisters Permaculture	5	50	80	
Shrewsbury Mini-BioBlitz	Preston Montford Field Centre	25/08/2013	Field Studies Council				
Rhydymwyn Valley Nature Reserve	Flintshire	31/08/2013	COFNOD			220	251
Old Moor Wetlands Centre	Wombwell, Barnsley	01/09/2013	RSPB		700	1000	
Stanhope BioBlitz, County Durham	Ashes Quarry Stanhope	07/09/2013	North Pennines AONB				
Heygate Estate BioBlitz, South London	Heygate Estate, South London	07/09/2013	London Wildlife Trust				
North Devon Mini-BioBlitz	Woolacombe	07/09/2013	Coastwise				
Jesmond Dene BioBlitz	Newcastle	08/09/2013	Newcastle Science Festival				
Flamingo Land		20/09/2013					
Sculthorpe Moor Community Nature Reserve, Fakenham	Norfolk	21/09/2013	Hawk and Owl Trust	60	600	515	
Druridge Bay BioBlitz	Hauxley Nature Reserve	05/10/2013	Northumberland Biodiversity Partnership and Northumberland Wildlife Trust				

9.2 Detailed website analytics

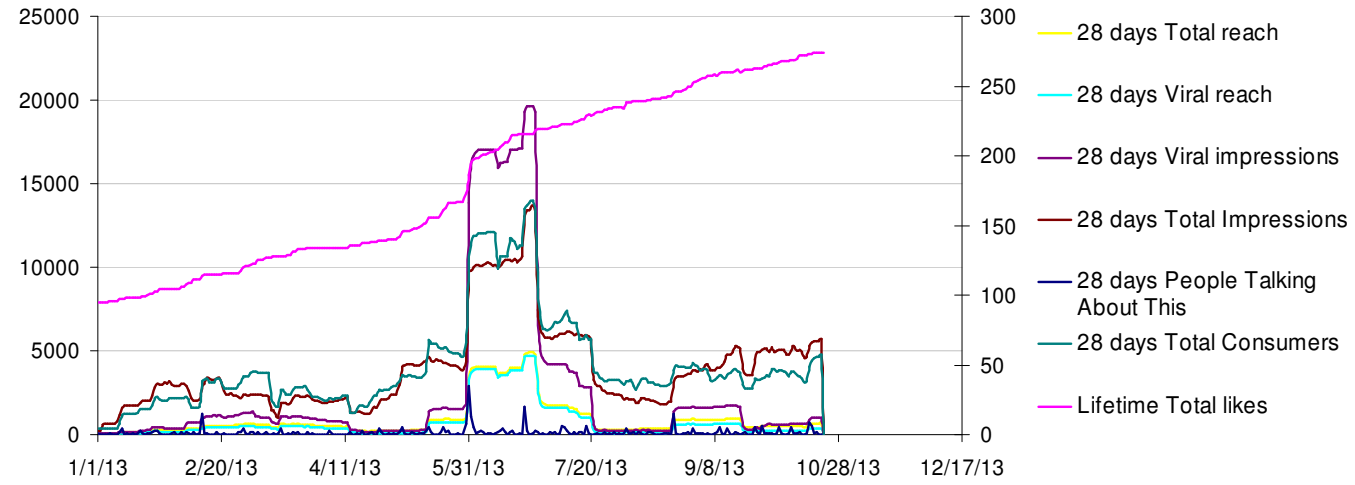








9.3 Facebook insights 2013



Facebook insights for www.facebook.com/ukBioBlitz in 2013 showing the accumulation of total 'Likes' (right hand axis) and various indicators of engagement (left hand axis).

28 Days is the time period over which data is aggregated to create each data point. This applies to all parameters except for the Lifetime Total Likes which is accumulatory.

28 days Total reach

28 days The number of people who have seen any content associated with your Page. (Unique Users)

28 days Viral reach

28 days The number of people who saw your Page or one of its posts from a story shared by a Friend. These stories include liking your Page, posting to your Page's Timeline, liking, commenting on or sharing one of your Page posts, answering a question you posted, responding to one of your events, mentioning your Page, tagging your Page in a photo or checking in at your location. (Unique Users)

28 days Viral impressions

28 days The number of impressions of a story published by a friend about your Page. These stories include liking your Page, posting to your Page's Wall, liking, commenting on or sharing one of your Page posts, answering a Question you posted, RSVPing to one of your events, mentioning your Page, phototagging your Page or checking in at your Place. (Total count)

28 days Total impressions

28 days The number of impressions seen of any content associated with your Page. (Total count)

28 days People Talking About This

28 days The number of people sharing stories about your page. These stories include liking your Page, posting to your Page's Timeline, liking, commenting on or sharing one of your Page posts, answering a question you posted,

responding to one of your events, mentioning your Page, tagging your Page in a photo or checking in at your location. (Unique Users)

28 days Total Consumers

28 days The number of people who clicked on any of your content. Clicks that create stories are included in "Other Clicks." Stories that are created without clicking on Page content (e.g., liking the Page from Timeline) are not included. (Unique Users)

Lifetime Total likes

Lifetime The total number of people who have liked your Page. (Unique Users)