



Engaging Volunteers

Guide to engaging volunteers in Citizen Science Projects



About this Report:

This research was carried out as part of the Scotland Counts project in order to provide guidance to those seeking to involve volunteers in Citizen Science. This report reviews current participation in citizen science, broader motivation of volunteers and provides practical hints and tips for engagement and new conduits for recruitment.

Who Gets Involved in Citizen Science?

There is surprisingly little data or research to date on the detail of who takes part in citizen science projects in the UK and “understanding the cultural, social, economic and physical barriers that currently inhibit engagement with citizen science remains complex” (Tweddle & Scott, 2009)¹. This perhaps reflects a tradition focus of citizen science on the production and analysis of data, rather than the volunteers themselves who take part in these surveys. However, without an active and engaged volunteer base, citizen science projects cannot work, so it is important to understand who takes part, and why.

What we do know is that involvement in Citizen Science projects is impressive and growing. For example, over 44,000 people took part in Butterfly Conservation’s Big Butterfly Count in 2014, undertaking more than 43,500 counts of butterflies and moths right across the UK with 94,000 people visiting the big butterfly count website between April and August.

The RSPB Big Garden Birdwatch and Big Schools Birdwatch received 19256 responses in Scotland alone and involved 25329 Adults (66%) and 12808 children (34%).

The OPAL project has carried out some analysis of the demographic of participants but with many participants not providing this information, it is limited. A major emphasis of the OPAL projects has been schools and this is reflected in the fact that 60 to 65% of all surveys submitted are from school participants. OPAL also focus on those ‘most in need’ of more engagement with the outdoors but nevertheless a 2011 OPAL report suggested a predominance of white, educated participants amongst adult participants, though did find that their work was introducing science and nature recording to new audiences. Another report carried out by OPAL showed that gender is evenly balanced amongst Citizen Scientists, with 51% being female. The number of non-white participants is also healthy, with 23% of Citizen Scientists non-white UK or Irish (against a total UK population of 16% non white UK or Irish). Disabled people were, however, less involved making up only 9% of participants, versus 18% of the total population (according to the 2011 census).

A major review of citizen science for the UK Environmental Observation Framework in 2012 concluded overall that, ‘there is still a long way to go if we are to truly democratise citizen science’ and Tweddle & Scott’s research in 2009 suggested that communities and demographics that are not fully engaged with science are also hard to reach from a citizen science perspective. Therefore, despite the limited evidence it seems fair to conclude that a lot more can be done in broadening engagement with citizen science and engaging a wider demographic.

¹ Quote from Roy and Pocock – Understanding Citizen Science report

What motivates people to be Citizen Scientists?

Recognising the importance of engaging more people, and maintaining long term involvement of volunteers, there is an increasing body of evidence considering what the motivations are of volunteer Citizen Scientists, and how projects can meet these needs more effectively.

People become Citizen Scientists on a voluntary basis. As unpaid volunteers who invest their own time and resources, they have other motivations for contributing to a project. Hence, it is crucial to understand volunteer motivations before asking them to contribute to a Citizen Science project.

[Sniffer Report – Citizen Science in Soil Erosion](#)

Studies suggest a wide range of diverse motivations amongst participants but include:

- Desire to learn skills.
- Interest in the environment.
- Social element (meeting fellow volunteers).

In turn this suggests that projects must ensure:

- Volunteers feel that they are valued members of the team.
- Volunteers receive feedback and thanks and are consulted about methods.
- Volunteers have ownership of the results through democratic internal governance.²

What motivates volunteers in general?

In many ways the motivations of Citizen Science participants therefore echoes that of other volunteers. For example, TCV's volunteering impacts report displays motivations for volunteering which clearly apply to Citizen Science as well. There are overlying motivations such as 'to improve the environment' though after volunteering with TCV for 10 sessions other motivations appear to be more important for the volunteers, such as 'enjoy working outdoors' and 'meet new people'.

This again suggests a social and enjoyment aspect to participants' motivation which may need to be more directly addressed in Citizen Science projects, in particular if we want to engage a wider cross section of society in research.

² For more details of the research behind this, *Hine et al. (2008), Crall et al. 2013), Lawrence, 2006 and Silvertown (2009: 470)*. There is a good summary in the Sniffer report mentioned above.

How are Citizen Science volunteers currently recruited and engaged?

UK Environmental Observation Framework (Roy and Pocock), who reviewed a total of 234 projects, suggest that a range of marketing options are used, including use of organisation's websites, e-newsletters and social media:

Most projects used websites as a major route to involving people in the project (78%), for most of the remainder, the website simply served as a port to direct people to further information. A substantial minority used smartphones (13%) and social media (9%) as a route to involvement. We would anticipate that these figures would increase rapidly over time.

This increasing emphasis on social media is backed by The Big Butterfly count which makes specific mention of the importance of social media and mobile apps in the success of the 2014 survey:

the media, Twitter and Facebook were alive with news of the count, as Sir David Attenborough implored the UK public to "produce a statistic that is of real value" in assessing how our butterflies are faring. The big butterfly count Smartphone app, which was created last year, continued to grow in popularity; over 11,000 counts (27% of the total) were submitted directly from participants' phones this year.

Though organisations do attempt to promote the surveys widely through press releases and social media it is clear that through targeting existing databases and social media followers, the majority of organisations are focusing on groups with an existing interest in the subject and the organisations involved. In many ways this may be an effective strategy in making the most of an interested audience who may already have skills in wildlife identification which can aid the production of a good quantity and quality of data.

However, many organisations also see Citizen Science projects as a method of outreach, to educate and engage a broader audience in not only their Citizen Science projects, but in a broader environmental agenda. For example organisations such as OPAL and the RSPB (through its Big School's Birdwatch) have focused specifically on schools as a way of engaging a new audience of young people in Citizen Science. Similarly BTO have focused on a range of other audiences, for example getting walkers and climbers involved in their 'What's Up?' program in order to monitor Scottish upland birds.

It is therefore a key element in planning any citizen science campaign that organisations are clear on the purpose of the project and if it is primarily focused on engaging existing interested individuals in data collection, or on outreach to new communities. In both cases, but perhaps particularly in engaging new audiences, one clear gap appears to be responding to volunteer's desire for social interaction opportunities. A number of organisations do provide some element of training, and perhaps annual events to celebrate their volunteers or the results of that year's survey. Whilst this is clearly a really important step in maintaining volunteer motivation, the majority of Citizen Science activities are still carried out independently and at distance from the organisation and other volunteers. There is also considerable scope for the development of online communities and, in particular amongst motivated, specialist

participants, this can be extremely valuable³. However, many online resources simply share ideas for projects, or links to other organisations but regular social events for citizen scientists appear to be at a premium. To illustrate this, a Google search of terms such as “citizen science club” / “citizen science group” / “citizen science event” revealed no such events through the first 10 pages of Google. Events such as bioblitzes meet this need in many ways and have been successful in achieving broader involvement and engagement but are limited in scope and availability.

Top – Tips

Through projects such as Scotland Counts and Our Green Places, TCV has developed considerable experience in engaging volunteers in Citizen Science projects, and in particular reaching new audiences. From this experience and consultation with other partners we have come up with the following tips for engaging volunteers with Citizen Science projects

- **Be clear what your Citizen Science is for** – if it is to collect data it may be best to just focus on engaging with existing interested and experienced groups. If the purpose is outreach, then this approach won't work – you want to really access those who wouldn't normally be involved.
- **Chose appropriate methods to reach your target audience** - think about their skills, interests and motivations and design a project and a marketing campaign to match those.
- **Set the level of ID and experience required to that of your audience.** You are not going to get people who have never carried out citizen science before to record different species of crane flies (unless they are really keen).
- **Focus on what is relevant to them** - try to find a topic that is of interest to your group. This might be species found in a local area or an area important to them, species relevant to where they work or volunteer (gardening, rivers, woodland) or species that people are going to come across.
- **Identify a hook** some groups may be motivated by interest in a particular species, others by a desire to be more active or get healthier by going outside more, others by satisfying other criteria such achieving a curriculum link...
- **... but be aware that motivations can change** – volunteers who may originally be motivated by health or social reasons may become more interested in time in a particular species, so adapt to changing interests in volunteers over time to keep them interested.
- **Have a bag of tricks** If you are running events you may not always know what initial hook will interest people so coming with a bag of tricks and ideas is always good. You need to tap into an interest to engage people.
- **Link in with existing networks** – To reach new audiences and promote your project it can be invaluable to link in with existing working groups and organizations.

³ See Fortson et al's paper about Galaxy Zoo for more examples of how the online community can develop and be used to progress new scientific directions and discoveries amongst motivated and knowledgeable participants (ADVANCES IN MACHINE LEARNING AND DATA MINING FOR ASTRONOMY, 2009).

Case Studies:

Case study 1: BTO 'What's Up?' Project – engagement of wider communities

What were the aims of the project?

The project aimed to engage large numbers of people from a range of new audiences in monitoring upland wildlife with a particular focus on birds.

Who did BTO try to engage?

BTO engaged a new audience who used the upland areas recreationally, for example hillwalkers, climbers and outdoor enthusiasts.

Why?

Upland environments in Scotland cover a huge area and are often less accessible and frequented areas. By focusing on those who spend time in these environments BTO aimed to increase capacity for data collection in these areas and create better understanding and appreciation of all that Scotland's uplands have to offer. At the same time the project would collect evidence of change, allowing decision-makers to ensure that these beautiful habitats deliver benefits for people and wildlife for generations to come.

What did BTO do to engage people?

To engage with the target audience BTO used a range of methods:

Project promotion

- Social Media – On the Facebook and Twitter Pages of organisations such as Walk Highlands, Climbing Centres, Mountaineering Council of Scotland, Stirling Hillwalking Club.
- Magazine Articles – In relevant magazines such as the Professional Mountaineer and Scotland Outdoors. Also smaller publications such as Mountain Bothies Association Newsletter, North East Mountain Trust Magazine.
- Website Articles – again on relevant organisation websites (Mountaineering Council of Scotland, Walk Highlands, Scottish Hills Forum).

Training days

Another method used to get the target audience involved in the project was to provide free, upland bird identification training days. These courses were held across Scotland, providing an opportunity for more people to be able to attend from throughout the country. They were carried in partnership with other organizations who provided venues and mountain leaders for the events.

Events

Another key way of engaging with the target audiences was to have a presence at events where this audience would be. Over the year BTO delivered a number of talks and had displays at various events such

as Ochils Mountaineering Club, the Banff Mountain Film Festival in Glasgow and Outward Bound staff training.

What did they learn from the project?

This project illustrates how important it is to know your target audience, understanding their existing interests, the events they attend and what they read. This allowed BTO to tap into and work with existing networks within their target community. It also allowed them to focus promotional work in areas where their target audience were most likely to see it.

The project also shows the importance of partnerships which played a huge part in raising awareness of the project. Partner organisations helped with promotion on their websites and social media, articles in their magazines and by holding training days at their sites.

Case study 2 – OPAL and TCV - engaging with schools and young people

Aims of the project

The aim of the project was to engage with teachers and schools to enable them to use and incorporate Citizen Science into their work and make it part of the curriculum.

Target audience

Teachers, primary school children, high school children, education departments within local authorities and Education Scotland.

Why?

Focusing on schools is a great way to engage a new audience and reach people across different communities.

How?

The project looked at how it could link in with other agendas within the education system. Therefore it linked in with a push to promote STEM (science, technology, engineering and math) subjects and to encourage children to look at STEM careers and projects. It also linked in with schools' desire to be involved with more "green" projects and be contributing to conservation and the environment. Finally, it linked in with a focus for teachers and schools to provide more outdoor education and outdoor lessons for school children.

In practice the project used on a two pronged approach:

Evening "twilight" sessions with teachers – these started after the school day and usually ran mid week. These sessions discussed the benefits of Citizen Science to pupils and to science. They demonstrated and explained various Citizen Science projects and initiatives. They also covered where various projects including Open Air Laboratories (OPAL) surveys met curriculum for excellence (CfE) outcomes. These

sessions aimed to build awareness of Citizen Science projects that were accessible to school children and to give teachers the confidence to run projects with their pupils.

Sessions within schools with pupils - these sessions covered various Citizen Science activities. They recorded their findings and encouraged teachers to upload data with their class after the sessions. By carrying out these sessions the pupils learned about Citizen Science and they contributed to scientific research. The sessions also aimed to show teachers present how they could run similar sessions with other classes.

To promote these sessions we attended large showcase events, such as the Scottish Learning Festival, City Council Schools meetings, Glasgow Science Centre Schools open days and other such events.

What did they learn from the project?

Engaging young people. Pupils who are not used to outdoor learning are likely to automatically go into "play mode" when leaving the building so give pupils a task to carry out on the journey, such as looking for habitat types, looking for different textures, colours and shapes in the environment, or trying to figure out how many different trees are in the playground. Even then, however, be prepared for pupils to get distracted from the task at hand, don't give up! The more you take pupils outside the more they will get used to the idea that spending time outdoors is an opportunity to learn. It will be well worth it, and it is actually quite likely that pupils who struggle to focus in the classroom will flourish in this new environment.

Use outdoor activities to reinforce classroom learning. You don't need to focus on whole topics that can take place outside. Simply look for ways to supplement what you are already doing. For instance, if pupils are learning about weather, take them out to experience, measure and discuss it in more detail; or if looking at food webs, follow up a classroom session by going outside and trying to find a living example. These experiences will help to reinforce classroom learning and by applying their learning to real life situations this will aid pupils in remembering what you have covered.

Link in with existing networks . It is important to make use of existing working groups and organisations that are well established in the area in which you wish to work. This meant the project did not have to strike out on its own but instead work with existing groups to promote its own activities to schools. For example, working with Education Scotland was incredibly valuable in helping promotion of the project to schools as well as helping ensure it was linked into the curriculum for excellence.

Case Study 3 – TCV, Our Green Places – Community engagement in Citizen Science

Aims of project

TCV's Our Green Places project engaged 'hard to reach' participants and communities across Scotland to understand the relevance of science in local outdoor places and actively participate in community based Citizen Science.

Target audience

The project targeted people in rural, remote and disadvantaged communities and young adults, young offenders, marginalised older people, people with disability and from ME communities and promoted STEM activities and careers to women.

Why?

- Increase understanding in disadvantaged, rural and under-engaged communities of the relevance of science in protecting and improving the local environment.
- Increase the diversity of individuals and communities in Scotland who are inspired to spend time outdoors observing and enjoying the world around us.
- Support disadvantaged and under-engaged communities in Scotland to work together to gather knowledge about the world around them and protect and develop their environmental assets, capacity, social capital and resilience.
- Provide opportunities for disadvantaged and marginalised people to increase confidence and prospects through developing new knowledge and skills.
- Increase peoples' time spent outdoors.
- Enable communities to work together to achieve local change.
- Increase confidence, skills and prospects in disadvantaged and marginalised individuals.
- Increase understanding of the environment and developing environmental stewardship.

How?

Outreach:

TCV attended 6 large events and 13 smaller scale local community events in rural, remote and disadvantaged communities throughout Scotland to participate in 'hands-on' activities and develop confidence as Citizen Scientists.

Citizen Science was promoted in a range of ways, including:

- An attractive display of live specimens for the public to view and learn about.
- A Citizen Science take home pack which included a "nature hunt" which could be carried out on the day, information and back ground to Citizen Science and other Citizen Science projects that people can get involved in.
- Badge making and arts and crafts activities.

Support and Training

TCV ran workshops and pilot sessions covering a range of Citizen Science activities and themes. They engaged with and trained people including teachers, people from various community groups and organisations across Scotland in various recording and monitoring methods to enable them to carry out Citizen Science activities.

Developing volunteers

The project carried out wildlife recording activities weekly with TCV's conservation volunteer groups and Green Gyms. This was supported by allocating each TCV office with a dedicated member of staff that has been trained in survey techniques and biological recording at a basic level.

What did they learn from the project?

Events are a great way to achieve broader engagement – in particular TCV found that designing a stall which appealed to children and families was a great way to engage more people. Therefore the project focused on fun and interactive things such as live specimens, or a nature hunt and giving away incentives such as a badge saying "I am a citizen scientist". This served as a good hook to engage people.

To gain feedback the project spoke to the public and got their opinions verbally. They also had a feedback box where people could select options by placing buttons into holes in a box.

To develop longer term involvement, they used packs with different surveys people could get involved with and they could take this home to carry out in their own time.

However, be aware, events are staff intensive and take up a lot of time - but they do give staff a chance to talk about and inform the public about Citizen Science, what it is and how people can take part.

Case study 4 - Co-created Citizen Science recording with older people

Aims of project

- Enable a group of volunteers to establish their own co-created project.
- Support the group to establish a project engaging in outdoor environmental recording activities (Citizen Science), using the co-created methodology.
- Improve the group's health and wider community integration through their participation.
- Increase participants skills and knowledge about wildlife and the environment.

Target audience

The Conservation Volunteers worked with Kinross Day Centre, which supports the local older people of the district, to enable a group of older volunteers to co-create and trial a suitable method of recording wildlife. The project was carried out in partnership with the Open University who provided assistance with project design and co-creation methodology.

How?

The project ran over a 3 month period, supported by Stevie Jarron from The Conservation Volunteers and Ronald Macintyre from Open University. The 6 retired volunteers who attended the group were shown various recording sheet types, methods of recording in surveys, single species, habitat surveying, online surveys, fold out charts and ID books. They showed the range of plants, fungi, birds, mammals, that

biological recording covers and environmental monitoring surveys for weather, air quality, phenology that they can take part in.

The group trialed various surveying methods and discussed with us how simple or difficult, convenient or restrictive the methods were. We discussed where and when they recorded, how they could check what they saw against what they knew or needed to find out and where the recording fitted with the other activities they undertook. The group came upon a simple method for record capture, police style notebooks, complete with pencil. They also thought that small Collins gem books, on birds and insects were convenient and useful for their instant use and portability. The group also viewed Field Studies Council fold out charts to supplement some of their sighting with positive IDs. A variety of websites that can help with ID (iSpot) and recording (BirdTrack) were taken up and used by a few.

What did they learn from the project?

- Health was the initial hook for some to participate in the project, but wildlife became a key factor in the reasons for the groups continued participation. This neatly demonstrates how projects need to both identify a hook to engage volunteers and adapt to changing interests in volunteers over time.
- The group agreed that they are now more active and more aware of the wildlife and the seasons around them. They know more about the local wildlife than ever before and enjoy discovering new plants and animals all the time.
- Be aware of the limitations, this can be a hard group to encourage to do more activities and the outdoor element could put a few people off, so promote it as day trips out as a way to attract people.
- Keep in touch, it is appreciated - set up local leadership and support, look for links with other groups.
- Look for simple and effective methods for wildlife recording such as the notebook system.
- A list of simple wildlife guides and FSC sheets, with iSpot type websites will help support the recording activities.
- Suggest the Biological Recording in Scotland (BRiSc) website as a place to send records or find Local records Centres to send records.
- Encourage a local lead on data verification and use. It is important to ensure that there is a home for the data.
- Try not to be too technical and formal. This group were happy to help once they got through our barrier of language use. An honest simple request for “tell us what you see, it’s important” was enough for them to join in.

How do I find out more?

- TCV can provide training and support for Citizen Science projects.
Please get in touch for any further help or advice:
- **Email:** citizen-science-scotland@tcv.org.uk
- **Phone:** 0141 552 5294
- **Address:** The Conservation Volunteers, Balallan House, 24 Allan Park, Stirling, FK8 2QG