

**Connecting with Nature:  
the role of motivation, fulfilment and perceived  
benefits in citizen science**

By

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**Report**

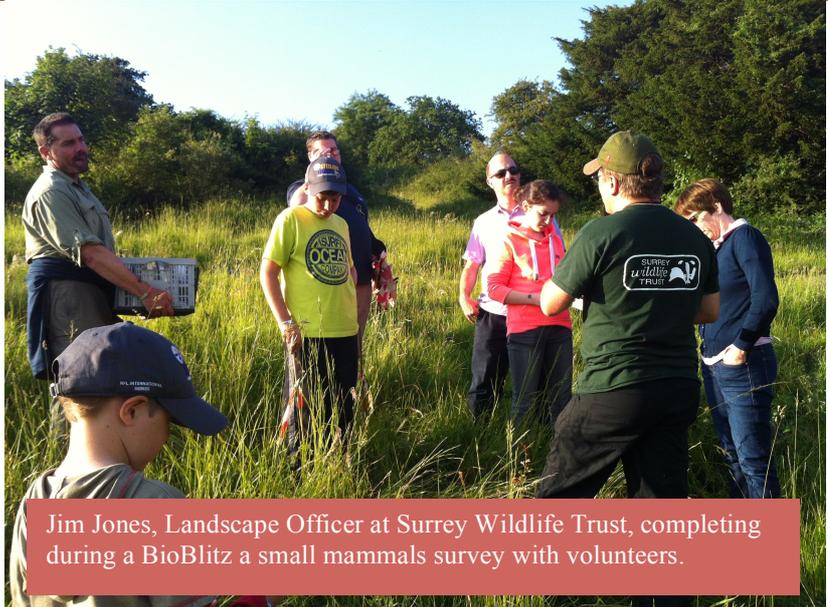
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## Background

The method of scientific research whereby citizens are involved in data collection and management of natural resources is known as ‘citizen science’. Citizen science (CS) presents a significant opportunity for conservation of global biodiversity. Over the past two decades the number of volunteer-based conservation programmes have increased and



Jim Jones, Landscape Officer at Surrey Wildlife Trust, completing during a BioBlitz a small mammals survey with volunteers.

differentiated in their aims and objectives. These programmes are intended to promote close cooperation between institutions, researchers in the field and citizens. People willing to participate to conservation initiatives incur high expenses but there are also a multitude of personal benefits that people can gain through the volunteer experience. Thus, for a programme being effective, conservation organisations that rely on the contribution of volunteers have to make sure that the benefits people derive from participation exceed the costs. Because of the central role of volunteers in CS programmes, more research is needed on the social and psychological aspects underlying the participative monitoring. For that reason, it is crucial the assessment of citizens’ motivations for volunteering and the understanding of those factors influencing the level of satisfaction, since this can determine a volunteer’s level of productivity. Furthermore, is essential to gain awareness on the expectations and benefits derived from participation in CS in order to fulfil motivations, increase satisfaction and deepen our understanding of what can makes programmes more effective. Therefore, for a thorough evaluation of CS programmes it will be important to consider both the scientific outcomes, but also the social-psychological aspects of volunteering. A better understanding of these aspects are of great help for developing strategies to facilitate recruitment and retention of volunteers, as well as to identify factors predicting volunteers’ productivity, so as to increase the effectiveness of programmes.

## Aims and objectives

The study was conducted in collaboration with Imperial College London and Surrey Wildlife Trust between May and September 2014 in the UK. The aim of this study was to understand the social and psychological aspects of conservation volunteerism; in particular three main objectives were set:

1. Understanding motivations leading people to engage in CS programmes.
2. Identifying factors influencing volunteers' satisfaction and wellbeing.
3. Identifying factors predicting volunteers' productivity.

## Data collection

Qualitative research methods such as focus group, face-to-face interviews, workshop and field observation were conducted at the initial stage of the research in order to gain an in-depth insight of the context of volunteer-based conservation programmes in the UK. This allowed the development of



Glen Skelton, RiverSearch Coordinator at Surrey Wildlife Trust, conducting during a training course a riverwalk survey with volunteers.

an on-line survey, which includes psychometric scales used to assess motivation, satisfaction and advocacy ability of volunteers. Quantitative data were collected via the on-line questionnaire taken by volunteers engaged in different CS programmes.

## Results

**Objective 1** – Five motivations for volunteering were identified: 1) Connection with Nature; 2) Social Interaction; 3) Project Organisation; 4) Community Building and 5) Personal Development. Connection with Nature was the most important reason for people to engage in CS regardless the programme they belong to. However, the four other motivations were valued differently across all programmes and motivations from respondents belonging to the same programme formed similar groups.

**Objective 2** – Individual Fulfilment and Perceived Benefits were identified as the factors influencing volunteers' satisfaction. The combination of these two factors drove a high mean satisfaction score. Volunteers indicated greatest agreement with Individual Fulfilment and then Perceived Benefits. This means that satisfaction arises when volunteers feel that they have successfully contributed to conservation and that the benefits derived from participation are developed over time and may be perceived as a function of the duration of volunteers' involvement.

**Objective 3** – Motivation and satisfaction were found to have an influence on volunteers' productivity. People motivated by Connection with Nature and Personal Development were more likely to spend more time volunteering in a day. A number of significant relationships were identified between satisfaction and productivity. Satisfied volunteers, with high score of Individual Fulfilment, spent more time volunteering in a month; whilst increasing perception of multiple benefits were related to an increase in the number of volunteering sites visited by volunteers. Finally, both factors of satisfaction had an influence on volunteers' level of productivity such that satisfied volunteers were more spurred to get involved in a greater number of different activities within the same organisation.

**Table 1. Description of the five volunteers' motivations identified in this study.**

<i>Motivation</i>	<i>Description</i>
<b>Connection with Nature</b>	People passionate and fascinated by nature are likely to be concerned about the ongoing degradation on the ecosystems. As a result, people decide to dedicate their time to a worthy cause and learn how to enhance and protect the natural environment.
<b>Social Interaction</b>	Volunteering facilitates social integration and provides opportunities to meet like-minded people. Being part of a group can be an important reason to volunteer. Respondents indicated that volunteering is an important activity for people they know best, highlighting how cultural and social context may have an influence over the decision of getting involved.
<b>Project Organisation</b>	Working for a well-run programme ensures to volunteers that time and resources are used efficiently, increasing the likelihood of obtaining visible results. This allows people to see how their contribution effectively makes a difference on the environment.
<b>Community Building</b>	Citizens want to establish a participatory community of volunteers skilled and dedicated to natural resources management. Local volunteering groups allow for social learning; dedicated volunteers take on educational roles and raise awareness on how to enhance the local environment.
<b>Personal Development</b>	Engaging in volunteer activities represents an opportunity for people of escape from sedentary lifestyle and to reduce stress. People motivated by Personal Development want to grow and develop psychologically, increase self-esteem, physical and spiritual health.

**Table 2. Description of the two factors influencing volunteers' satisfaction identified in this study.**

<i>Satisfaction</i>	<i>Description</i>
<b>Individual Fulfilment</b>	Fulfilment is generated by an overall positive experience and a sense of personal efficacy aligned with conservation values such as contributing to science and nature conservation. Individual Fulfilment is also derived from holding roles and responsibilities that meet individual motives.
<b>Perceived Benefits</b>	Benefits are related to initial motivations and expectations but are also likely to evolve during participation. The perception of benefits throughout the volunteer experience is crucial for generating satisfaction and increasing retention. Benefits are associated to spiritual and physical health, for example: increased self-esteem, expanded social network, learning new skills, breaking from routine, and enhancing physical health.

## Recommendations

- Identifying motivations and expectations at the initial stage of the volunteer experience in order to match volunteers with the programme that best suits them – it is essential to keep the initial enthusiasm and motivation of volunteers, therefore to increase retention.
- Assessing motivations and understanding what people value in order to determine marketing and recruitment strategies and to inform the design of volunteer-based programmes.
- Identifying general profiles of the volunteers dedicated to different CS programmes for developing effective strategies to engage the public.
- Understanding what makes a fulfilling experience and what are the benefits derived from participation in order to increase volunteers' satisfaction, commitment and productivity.
- Understanding reasons of dissatisfaction and inactivity – this could be done by developing a system that allows volunteers to communicate dissatisfaction and through interviewing inactive participants.
- Assessing quality of data collected by volunteers and testing relationships with the level of satisfaction of participants.
- Integrating scientific and social outcomes the evaluation of CS programmes – including the assessment of motivations and satisfaction in evaluating volunteer-based programmes is important for implementation strategies.

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