



Networks for Citizen Science in Europe and Germany

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Context

Citizen science is a rapidly developing research approach, increasing in popularity within the science community and civil society, as well as in the media and among policy-makers (Pettibone et al., 2017). Various attempts to define citizen science have been made (e.g. Irwin, 1995; Bonney et al., 2009; Wiggins & Crowston, 2011; Shirk et al., 2012; Haklay, 2015), most of which encompass a kind of active participation of volunteers in the scientific process. In recent years, networks have played an important role in the development and professionalization of citizen science (Göbel et al., 2017; Storksdiack et al., 2016). In this article, we present an overview of the European Citizen Science Association (ECSA) and Bürger schaffen Wissen (roughly translated to “citizens create knowledge”), an online platform for presenting and networking citizen science projects in Germany.

Europe: European Citizen Science Association

The European Citizen Science Association¹ is a non-profit association that has grown from an informal network of researchers and communicators interested in citizen science into the European reference network of citizen science initiatives, launched during the EU Green Week in June 2013. ECSA's mission is to connect citizens and science by fostering active participation, with the vision that by 2020, citizens in Europe will be valued and empowered as key actors in advancing knowledge and innovation, and thus supporting sustainable development of our world. To achieve this, ECSA has defined three main aims:

1. Promoting sustainability through citizen science
2. Building a think tank for citizen science



Photo credit: Karo-Krämer

1. <https://ecsa.citizen-science.net/>



3. Developing participatory methods for cooperation, empowerment and impact

With aim 1, ECSA acknowledges the urgent need to join forces and set common goals in order to confront the multiple and interrelated threats to a sustainable future on our planet. Citizen science can contribute significantly to monitoring the causes of environmental degradation as well as the success of political and innovative social measures toward increasing sustainability. Aim 2 deals with promoting excellence in citizen science through the development of capacity, knowledge and skills at the European, national and regional levels. Aim 3 is targeted towards promoting scientific literacy and increasing capacity to make informed decisions, empowerment and the democratization of expertise through citizen science. The ECSA Strategy (ECSA, 2015a) describes the ways in which ECSA intends to achieve its aims in more detail.

With its headquarters hosted by the Museum für Naturkunde Berlin² (museum of natural history), ECSA builds on the substantial expertise of its members in order to mobilize citizen science as a means for evidence-based sustainable development. The association currently has over 230 members from across Europe as well as further afield in Australia and the Americas. These members cover a wide range of expertise across different areas of citizen science, such as biodiversity and public health. ECSA members develop their activities through Working Groups, covering various topics (e.g. best practice and capacity building). The nature of the outputs of the various working groups differ, but a good example of ECSA's flagship outputs are the 'Ten Principles of Citizen Science' (ECSA, 2015b).

ECSA also plays an active role in citizen science research projects, most notably through participation in EU-funded projects (e.g. through the Horizon 2020 Programme). One of those projects is LandSense³, which aims to establish a citizen observatory to aggregate innovative earth observation technologies, mobile devices, community-based environmental monitoring, data collection, interpretation and information delivery systems to empower communities to monitor and report on their environment. One of the themes addressed by LandSense is that of habitat and forest monitoring. A demonstration case in Indonesia will help local community members monitor ongoing threats to forests. In Indonesia, major threats are posed by industrial agricultural plantations (most notably for oil palm), which are a rapidly increasing yet largely unmeasured source of tropical landcover change (Carlson et al., 2012). These changes bear impacts

on biodiversity (Fitzherbert et al., 2008), carbon emissions (Carlson et al., 2012), and general land degradation (Wicke et al., 2011). However, the data needed to assess changes in land use and land cover are often lacking or of poor quality (Wicke et al., 2011). Thus, projects like LandSense have the potential to show how citizen science can support the work towards sustainable food systems.

Germany: Bürger schaffen Wissen

We now take a closer look into the situation in Germany. The online platform www.buergerschaffenwissen.de was established in 2014, hosted by Museum für Naturkunde Berlin in cooperation with the science communication agency Wissenschaft im Dialog⁴ and funded by the German Ministry of Education and Research. The platform

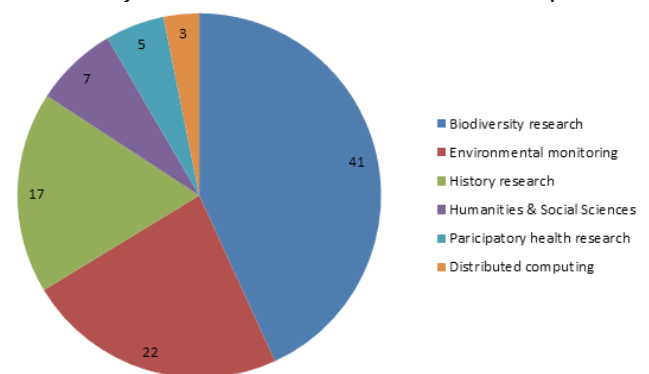


Figure 1: Disciplines represented on buergerschaffenwissen.de. Source: www.buergerschaffenwissen.de, Retrieved December 14, 2017.

aims to network and support the different stakeholders of citizen science in Germany, communicate with the broader public, and develop quality procedures for citizen science projects. In a joint effort with the capacity-building program for citizen science GEWISS, the platform was actively involved in the facilitation and building of the citizen science community in Germany (Ziegler et al., 2014; Pettibone et al., 2016a). Core products include the "Green Paper Citizen Science Strategy 2020 for Germany" (Bonn et al., 2016) as well as a guide for citizen science practitioners, "Citizen science for all" (Pettibone et al., 2016b).

Buergerschaffenwissen.de currently presents and networks 95 citizen science projects in Germany (as of December 2017). The projects represent different disciplines, focusing on biodiversity research and environmental monitoring, but also featuring a strong history research branch as well innovative approaches in disciplines like the humanities and health research (**Figure 1**). Roughly 60 % of the projects are led by "classic" scientific institutions, such as universities and research institutes of Leibniz- and Helmholtz-Gemeinschaft,

2. <https://www.naturkundemuseum.berlin/>
 3. <https://landsense.eu/>
 4. <https://www.wissenschaft-im-dialog.de/>



whereas 40 % of the projects are led by NGOs, government agencies and other institutions (Figure 2, Pettibone et al., 2017). The projects feature heterogeneous research approaches and different modes of citizen participation, ranging from serious gaming to long-term NGO-led research in the form of voluntary research associations (so called “Fachgesellschaften” or “forschende Vereine” in German). So far, two projects on buerger-schaffenwissen.de have researched the field of sus-

zen science, to the sustainability of food systems. Citizen Science networks at different levels, like ECSA at the European level and Bürger schaffen Wissen at the national level, are key to promoting best practice exchange and quality standards by integrating single efforts. This is crucial in order to address major challenges that citizen science faces, such as science-society communication, data quality and interoperability, and funding opportunities.

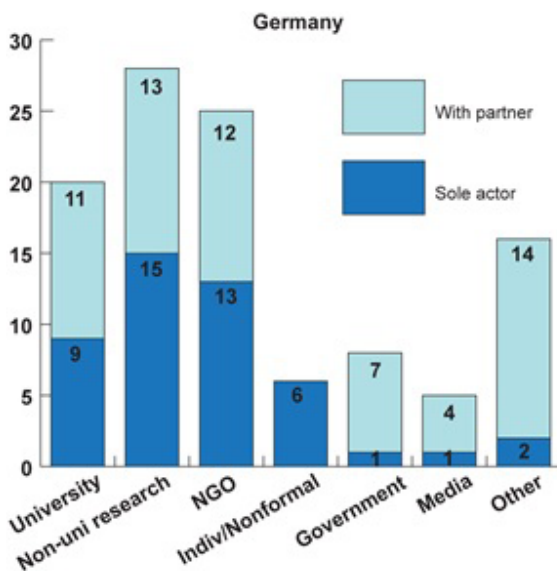


Figure 1: Engagement in platform projects by actor type, Germany only (Pettibone et al., 2017)

tainable food systems: “#fischdetektive”, inquires about the origin of the fish we consume and “Wie isst man 2000 Watt?” is a project dealing with food waste.

Bürger schaffen Wissen offers different services to the German citizen science community and citizen science practitioners. These include professional consulting (in the fields of communication, media and research design); training for citizen science practitioners, (e.g. in the fields of social media (Ziegler et al., 2017a) and storytelling methods (Pettibone et al., 2016c)); networking and community building; background information on ongoing scientific and political discussions concerning citizen science (via a newsletter and blog on buerger-schaffenwissen.de); and the annual stakeholder conference Forum Citizen Science Deutschland (Pettibone et al., 2016d; Ziegler et al., 2017b). Citizen science projects, practitioners and researchers are encouraged to join the growing network of Bürger schaffen Wissen.

Outlook

Citizen science is an expanding field and can play an important role towards sustainable development. Projects like LandSense, #fischdetektive and “Wie isst man 2000 Watt?” are underway that can contribute, through citi-

Useful websites

- <https://ecsa.citizen-science.net/>
- <http://www.buergerschaffenwissen.de/>
- <https://www.naturkundemuseum.berlin/>
- <https://www.wissenschaft-im-dialog.de/>

Source

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