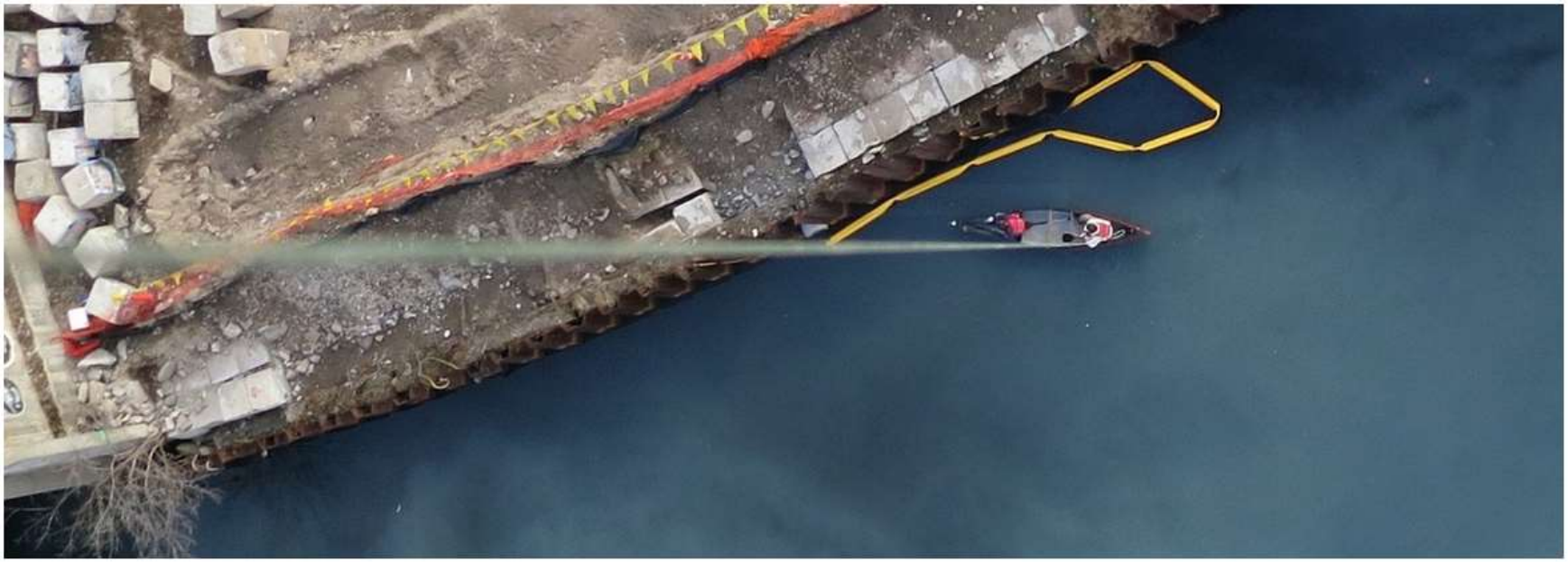
Fostering robust knowledge communities: Citizen Science 2030

Dr. Maike Weißpflug
Museum für Naturkunde Berlin
European Citizen Science Association (ECSA)

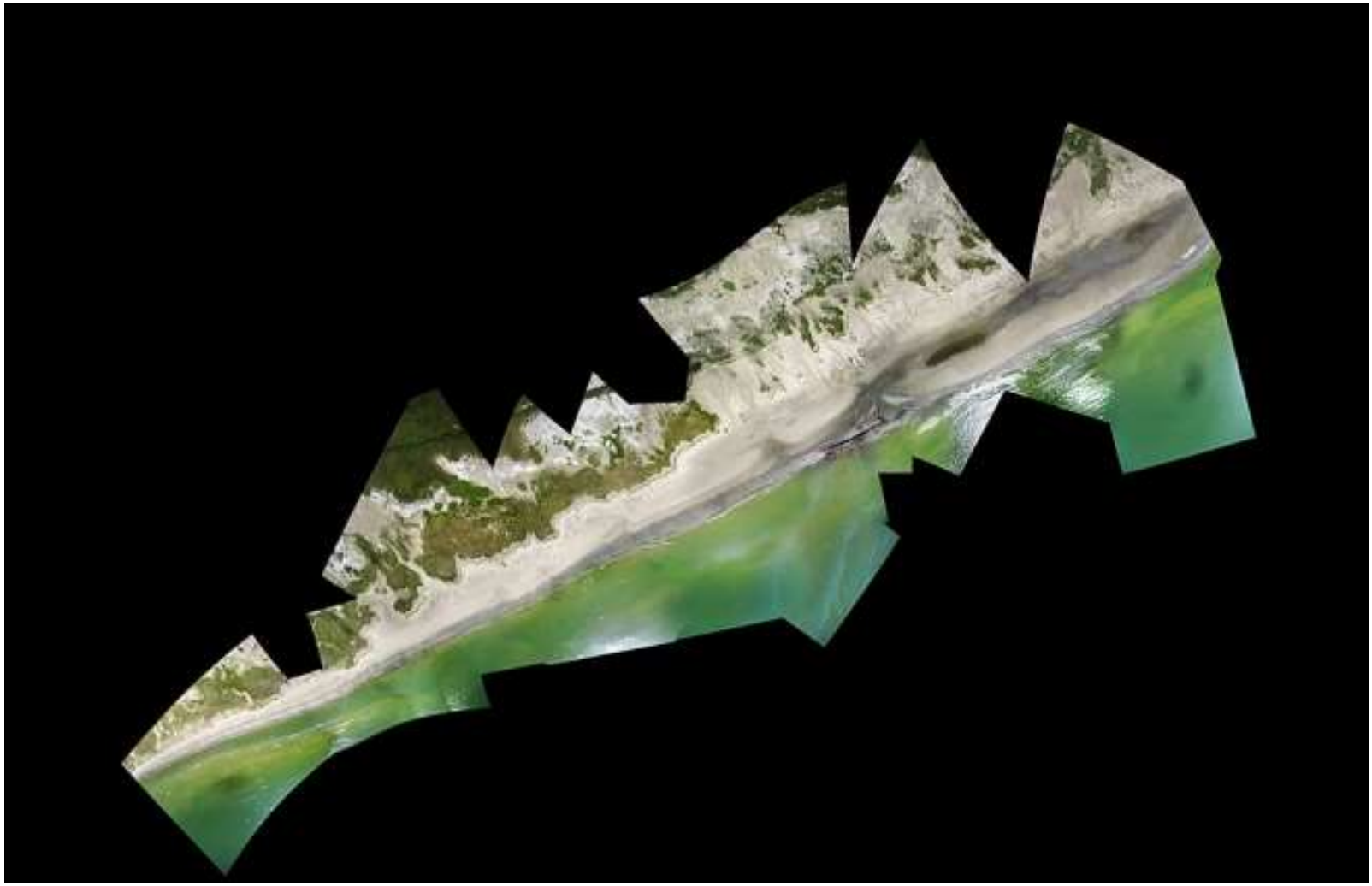
What is Citizen Science?

"scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions"

Oxford English Dictionary



Public Lab is a community where you can learn how to investigate environmental concerns. Using inexpensive DIY techniques, we seek to change how people see the world in environmental, social, and political terms. Join now »



1. International developments

Emerging Global Citizen-Science - network & - research

International meeting of Citizen-Science-associations (North America, Australia, Europe, emerging associations in Asia and Africa) 2017 in Nairobi, Kenia

Current List of Participant Organizations

ACSA
ADEC Innovations
Adventure Scientists
AR+ Action Research Plus Foundation
Barcelona Citizen Science Office
CitizenScience.Asia
Citizen Science Center Zurich
Citizen Science Interoperability Pilot (CitSciPilot)
Citizen Science Network Austria (CSNA)
Citizen Science Scotlan
Co-Enterprise
CSA
Curious Minds
Custodians of Rare and Endangered Wildflowers
EarthWatch Institute
ECSA
Forest People Programme (FPP)
Global CEO Alliance
Global Mosquito Alert Consortium
Group on Earth Observations- Earth Observation and Citizen Science Community Activity
Italian Long-Term Ecological Research Network (LTER- Itlay)
NASA Goddard Space Flight Center Process Improvement Project
Norwegian Institute for Air Research
OpenLitterMap
Parks Canada
Participatory Monitoring and Management Partnership
Participatory Research Australia
Red Iberoamericana de Cienci A Participativa (RICAP)
Smart and Sustainable Action Association
SPOTTERON Citizen Science
The Federal Community of Practice for Crowdsourcing and Citizen Science
The GLOBE Program
UN Environment
UNESCO
US Environmental Protection Agency Citizen Science Community of Practice (EPA CoP)
Wilson Center

Founding Partners

ADEC INNOVATIONS USA
Australian Citizen Science Association
EUROPEAN CITIZEN SCIENCE ASSOCIATION
GCEOA
PMMP
SMART AND SUSTAINABLE ACTION ASSOCIATION
UNESCO
Wilson Center

Supporting Partners

citizen cyberlab
CITIZEN SCIENCE CENTER ZURICH

Citizen Science und SDGs

Perspective | Published: 09 October 2019

Citizen science and the United Nations Sustainable Development Goals

Steffen Fritz, Linda See, Tyler Carlson, Mordechai (Muki) Haklay, Jessie L. Oliver, Dilek Fraisl, Rosy Mondardini, Martin Brocklehurst, Lea A. Shanley, Sven Schade, Uta Wehn, Tommaso Abrate, Janet Anstee, Stephan Arnold, Matthew Billot, Jillian Campbell, Jessica Espey, Margaret Gold, Gerid Hager, Shan He, Libby Hepburn, Angel Hsu, Deborah Long, Joan Masó, Ian McCallum, Maina Muniafu, Inian Moorthy, Michael Obersteiner, Alison J. Parker, Maike Weissplug & Sarah West - Show fewer authors

Nature Sustainability **2**, 922–930 (2019) | Download Citation
203 Accesses | **123** Altmetric | Metrics »

Abstract

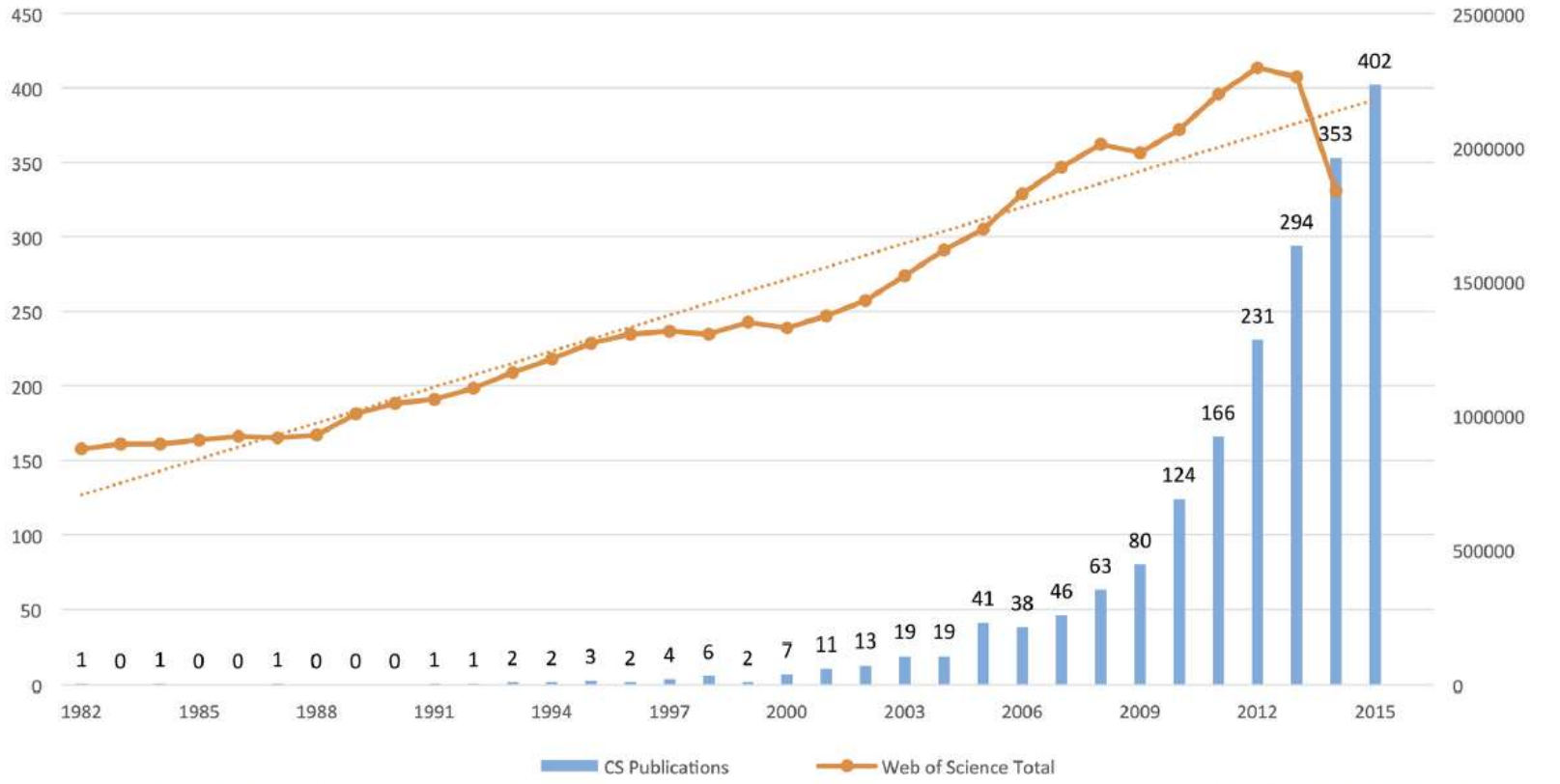
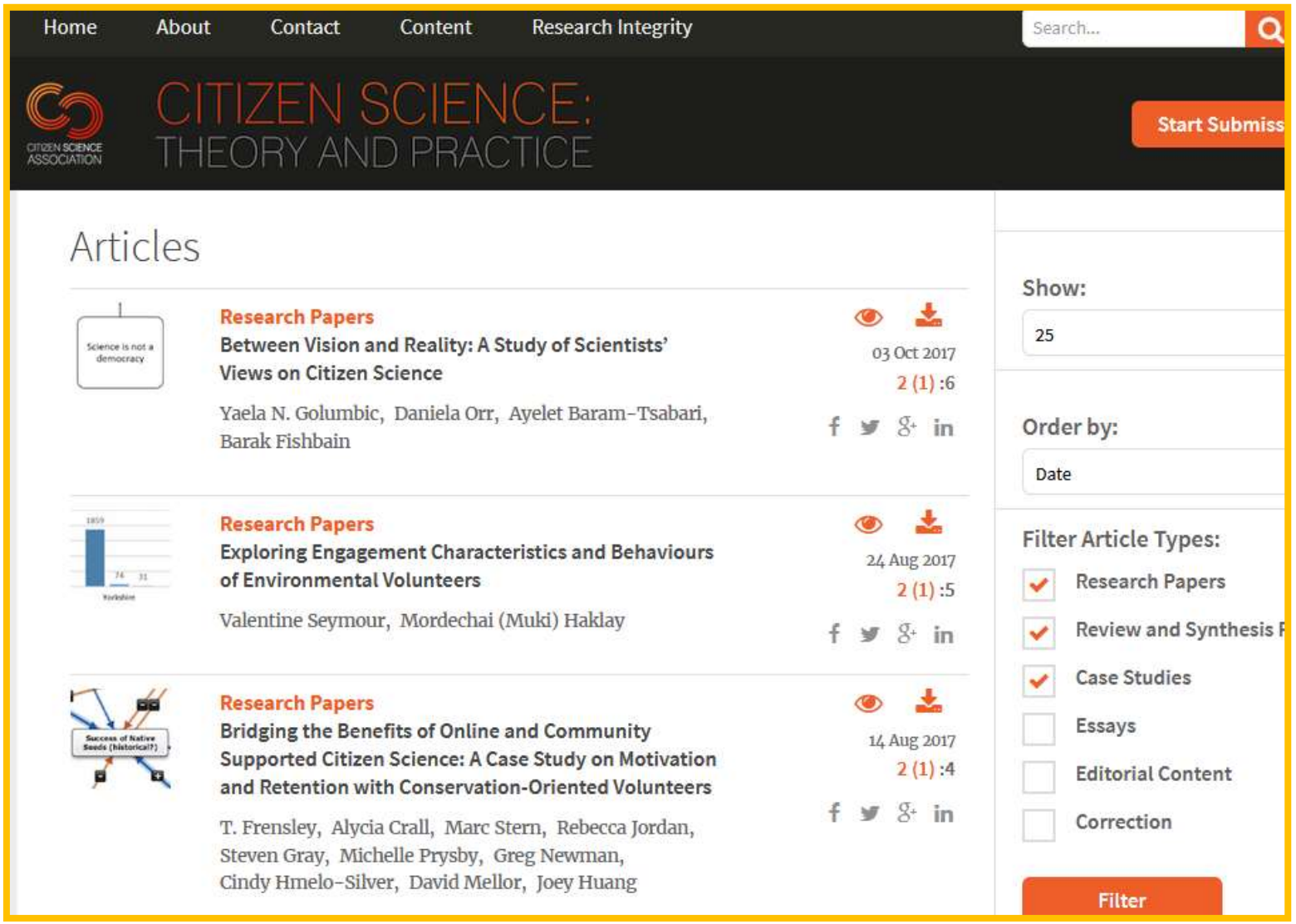


Fig 2. Growth of CS publications compared to WoS total. N = 1935. Search was conducted 2015-12-17 using the search string in S1 Appendix.

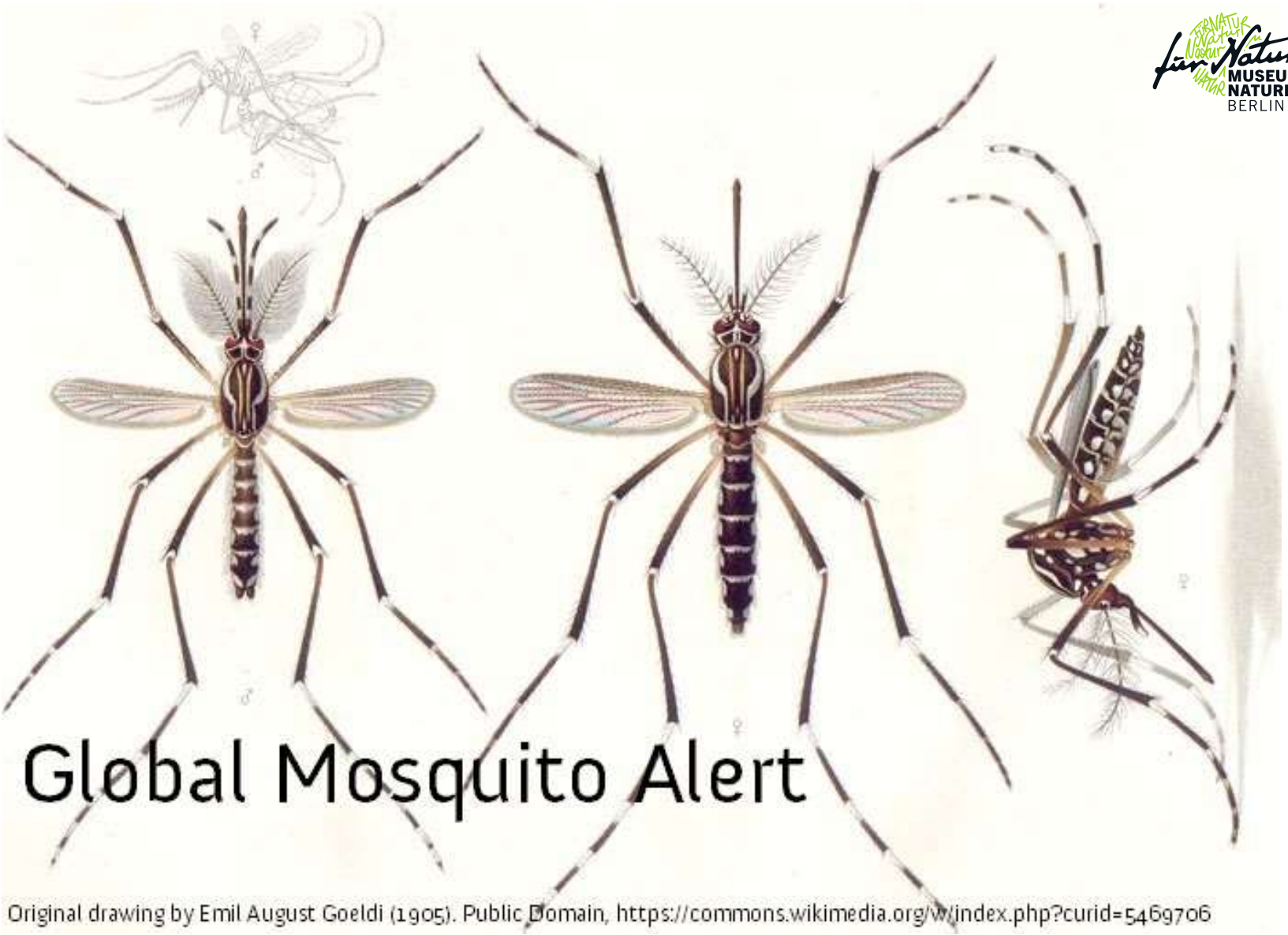
doi:10.1371/journal.pone.0147152.g002

Source: Kullenberg C, Kasperowski D (2016) What Is Citizen Science? – A Scientometric Meta-Analysis. PLoS ONE 11(1): e0147152.

International peer-reviewed journal



https://theoryandpractice.citizenscienceassociation.org/



Original drawing by Emil August Goeldi (1905). Public Domain, https://commons.wikimedia.org/w/index.php?curid=5469706

Empowers national networks, Stakeholders and governments to generate and access local real-time data and tools

https://ecsa.citizen-science.net/blog/press-release-global-mosquito-alert

2. European perspective

Open Science Policy Platform 2016-2020

consisting of 25 members @ Europe wide remit

Members from

- Universities
- Research organisations
- Academies/learned societies
- Funding organisations
- Citizen Science Organisation
- Publishers
- Open Science Platforms
- Libraries

Citizen Science: now an integral part of European research policy and funding

Integrated advice of the Open Science Policy Platform (OSPP) Recommendations

Date of Adoption: 22nd April 2018- Date of Publication: 29 May 2018

The recommendations have been split up into the 8 priorities identified from the EU Open Science Agenda

- Rewards and Incentives
- Research Indicators and Next-Generation Metrics
- Future of Scholarly Communication
- European Open Science Cloud
- FAIR Data
- Research Integrity
- Skills and Education
- Citizen Science

The major stakeholder groups (as listed in the key below) who have the main responsibility to drive the actions stated in the recommendations have been listed alongside each one.

Citizen Science

Publicly funded Citizen Science projects (as part of FP9 projects) should actively apply the principles of Open Science (including openness and reuse of all research outputs, data and publications).

Research-performing organisations (RPOs) are encouraged to promote infrastructures and human capacity to create a supportive and open environment for Citizen Science, which can further strengthen the outreach of RPOs to society. Research libraries are well placed, amongst others, to contribute actively to the necessary coordination and communication infrastructures as well as relevant training, fostering skills such as community management, co-production of knowledge, Open Science standards and social diversity. Appropriate funding and incentives need to be put in place to support this endeavour.

The EC must support an online toolkit for Citizen Science in Europe. This tool must promote Citizen Science as a European asset, offering an entry point and mutual learning space, interconnecting with existing activities and infrastructures at the European, national and local level. It should highlight particular achievements and best practices, and promote a clear set of principles, guidelines & quality criteria for Citizen Science.

Funding for Citizen Science projects should be flexible, long-term and allow for small or experimental projects in collaboration with key stakeholders to be funded. A small section of FP9 should be set aside for citizens to propose research topics or projects. These should be chosen on the basis that they are high risk, beyond traditional research fields and conform to the rigorous standards expected of other projects. Successful proposers will need to work with compliant institutions.

Vision for Citizen and Open Science in Europe

“Citizen science is fully part of open science. It respects open science principles, as all research activities should – not more, not less. By 2030, citizen science is recognised as an integral part of open science, producing reliable and trusted data and knowledge, and delivering measurable benefits to citizen scientists, science and society as a whole.”

Horizon Europe

“Open science will be the modus operandi of Horizon Europe. As such, citizen science, as a part of open science, should be fully integrated into Horizon Europe.” (EC Note, Jan 2019)

Citizen Science in Europe: Roadmap 2018-2020

- 01/2018 — OSPP Reflection paper on Citizen Science
- 01/2019 — Meeting of the OSPP
- Q1 2019 — Issuing expert contracts on citizen science
- Q2/3 2019 — Delivery of reports on citizen science in the natural and social sciences
- October 2019 — High-level Helsinki workshop [FI Presidency]
- *01/01/2020* — *Start of Horizon Europe*
- Q4 2020 — Adoption of the **'Berlin toolkits'** at the Berlin conference [DE Presidency]

National Citizen Science Networks in Europe

Bürger schaffen Wissen
Die Citizen Science Plattform

Zentrum für Citizen Science

Österreich forscht
www.citizen-science.at

sciencecité

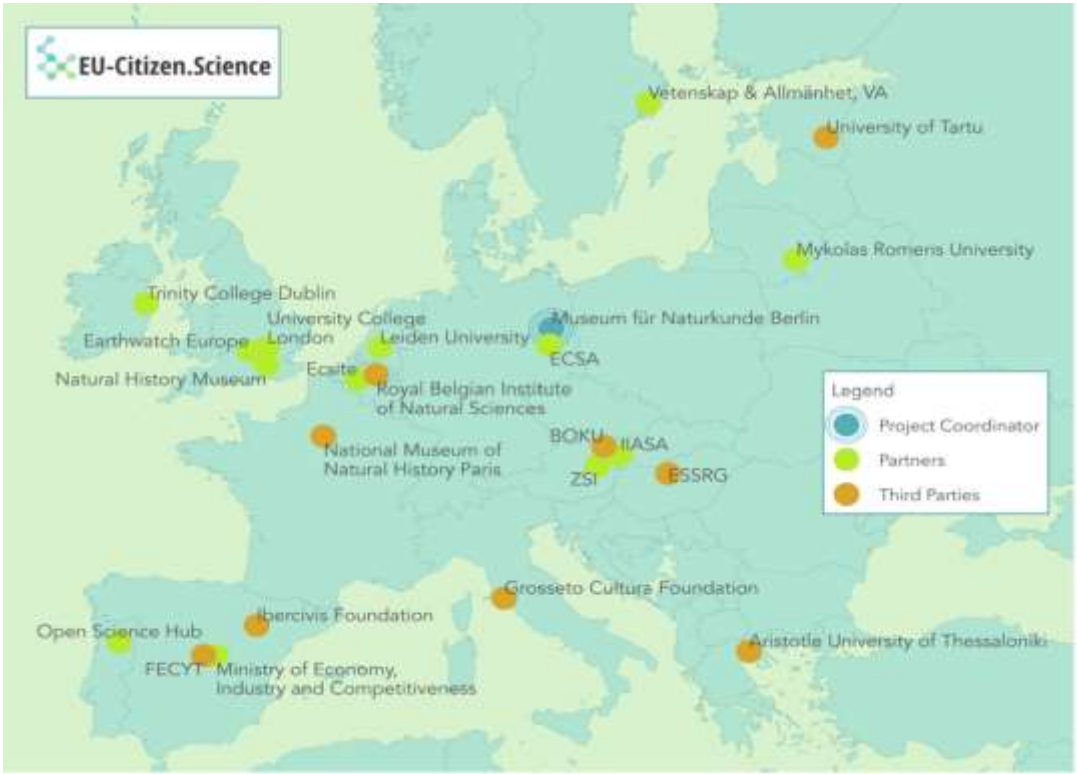
Netzwerk-Citizen Science Schweiz

British Ecological Society
Citizen Science Group

- ***Extreme Citizen Science (ExCiteS)***
- ***Open Air Laboratories (OPAL)***

EU-Citizen.Science

The Platform for Sharing, Initiating, and Learning Citizen Science in Europe



Funding period: 2019 – 2022

Lead: Museum für Naturkunde Berlin

Researching Citizen Science

CA15212: Citizen Science to promote creativity, scientific literacy, and innovation throughout Europe

http://cs-eu.net/

Highlight 2020

Internationale Citizen-Science-Konferenz „A Citizen Science Decade 2020-**2030**“

- Theme: Citizen Science & Sustainable Development.
- When: October 2020, as part of the German EU Presidency 2020
- Funded by EC

- Together with: Citizen-Science-Festival (funded by BMBF)

3. Citizen Science in Germany

MUSEUM FÜR NATURKUNDE BERLIN

taz.de !

GESELLSCHAFT KULTUR SPORT BERLIN NORD WAHRHEIT

Bürgerwissen ist gefragt

Forschungs-Hiwis oder Partner?

Die erste Citizen-Science-Konferenz in Berlin beriet über Bürgerwissenschaft. B
Laienforscher nur als Hilfskräfte dienen sollen.

VON DER GEFAHR ZUM HELFER

Die guten Mücken

von Jana Schlütter

Zika, Dengue, Chikungunya übertragen, sollen Mücken – mithilfe eines Bakteriums Kolumbien beginnen nun

Dale sitzt ganz am Ende de
hält nur still, während sein A
einem 30 mal 30 Zentimeter großen Käfig
Netz sirren 600 Mücken. Es i
Weibchen haben

stbeitrag

Mehr Bürger in die Wissenschaft

Gert G. Wagner

Bürgerwissenschaft (Citizen Science) muss heißen, dass Forscher und Laien auf Augenhöhe kooperieren. Das fordert Gert G. Wagner vom Deutschen Institut für Wirtschaftsforschung in einem Meinungsbeitrag für den Tagesspiegel.

Avanti Dilettanti?

Forschung von Laien für Laien: Nach der Rede von Akademiepräsident Günter Stock wird

Vielleicht ist es ja nur Zufall, dass in der Stunde der Bürgerforscher (citizen scientists) die Wissenschaft um ihre Autonomie fürchtet. Vielleicht ist es aber auch eine bewusste Provokation oder doch eher eine allergische Reaktion gewesen. Manches deutet darauf hin. Fest steht: Günter Stock, Physiologe und Präsident der Akademie-Union sowie der Berlin-Brandenburgischen Akademie, hat mit seiner Festrede zum Leibniztag eine Debatte um die „Demokratisierung der Wissenschaft" losgetreten, die nun die Bewegung der Reformer für eine „Bürgerwissenschaft" oder gar „Bürgeruniversitäten" erst richtig in Fahrt bringt.

Es waren
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darmenmark
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schaft zu w

394.2 x 563.4 m

dort also, wo vor allem die Grundlagenforschung ihre Fördergelder in der Hauptsache bezieht: „Gesellschaftlich relevante Gruppen halten Einzug in den Hauptausschuss der Deutschen Forschungsgemeinschaft, um dort – unter anderem im Rhythmus der Landtagswahlen – Forschungsziele zu definieren."

Das war eine Steilvorlage für die betreffenden jungen wissenschaftspolitischen Initiativen wie die „Nachhaltige Wissenschaft" oder die „Zivilgesellschaftliche Plattform Forschungswende" und ihre Unterstützer, die nun genüsslich zum rhetorischen Gegenschlag ausholen. Die Akademien werden, als wäre die etablierte Wissenschaft jemals demokratisch struktu-

„Vereinnahmung durch Einzelinteressen in verfeinerter Form durch die Prozesse der Ökonomisierung und einseitiger Exzellenzorientierung" stattfinde. Brüssel mit seinem neuesten Forschungsrahmenprogramm „Horizon 2020", in dem ein Drittel der Fördermittel für Kommunikations- und Partizipationsteilprojekte und damit im weitesten Sinne für Rechtfertigungsvorhaben auszugeben ist, sei da schon deutlich weiter. Tatsächlich war die Brüsseler Demokratisierungsrhetorik wohl der eigentliche Anlass für Stocks wissenschaftspolitische Verteidigungsrede.

Ob er allerdings gewollt hat, was nun aus der Debatte zu werden verspricht, ist fraglich. Denn nicht nur, dass die Wissenschaft die seit dem Kalten Krieg entbrannt

neuerer Ze
Science: Da
en", Münch
kommen, „C
und zur Ka
nach politis
lage" zu be

Citizen Science

Das Leben als Labor

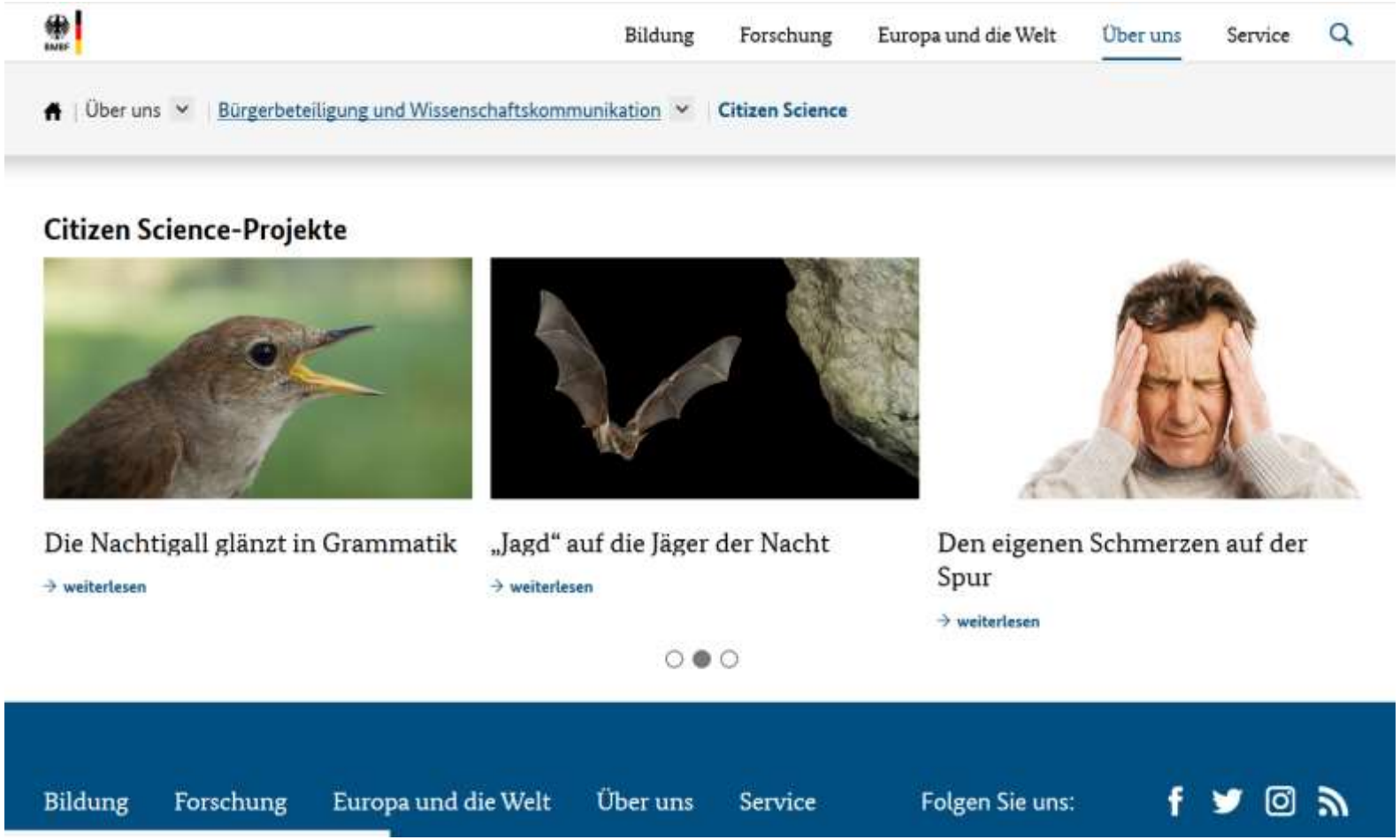
Wissen? Schaffen Wissenschaftler. Bisher. Neuerdings beteiligen sich Millionen Laien an Forschungsprojekten. Über Theorie und Praxis der Citizen Science.

Text: Christian Sywottek
Illustration: Deborah Tyllack

Ausgabe

Leserbri

A small step for Germany: 13 pilot projects receive BMBF-funding in 2017.



Bürger schaffen Wissen

Die Citizen Science Plattform

Bürger schaffen Wissen

Die Citizen Science Plattform

Eine Plattform von:

für Natur MUSEUM FÜR NATURKUNDE

wissenschaft im dialog

GEFÖRDERT VOM

Bundesministerium für Bildung und Forschung

buergerschaffenwissen.de

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Die Citizen Science Plattform

Projekte entdecken

Sammler- oder Spielertyp? Berlin, Bamberg oder bundesweit?
Hier gibt es alle Citizen Science-Projekte im Überblick.

Themen | Ort

☐ Für Kinder geeignet
☐ Auch abgeschlossene Projekte anzeigen

HackAIR: Bürger*innen messen Feinstaub

mit App · Aktionszeitraum

Feinstaub selber messen. Diese Daten in einer offenen Datenbank allen zugänglich machen. Und damit Anhaltspunkte schaffen für eine Zukunft mit sauberer Luft.

Gesundheit, Klima, Stadt

mehr →

Die Wanderung des Admiralfalters

für Kinder geeignet · mit App

Admiralfalter wandern ähnlich wie Zugvögel jeden Herbst in den Süden? Meldet eure Sichtungen und helft dabei, die Wege des Admirals zu erforschen.

Tiere

mehr →

Sample das Saarland

Hebe den mikrobiellen Schatz im Saarland und leiste einen Beitrag zur Erforschung neuer Medikamente. Mit dem Probensammel-Kit ausgestattet, kann sofort losgebuddelt werden.

Gesundheit, Mikroorganismen

mehr →

Clusterkopfschmerzen erforschen (CLUE)

mit App

Leidest du unter Clusterkopfschmerzen oder Migräne? Beteilige dich jetzt an einem Forschungsprojekt, um die Ursachen und Auslöser der Krankheit besser zu verstehen.

Gesundheit

mehr →

Repara/kul/tur

Aktionszeitraum

Reparieren statt Wegschmeißen! Repara/kul/tur erforscht gemeinsam mit den Mitwirkenden von Repari-Cafés und Offenen Werkstätten Praktiken des Reparierens und Selbermachens.

Kultur, Technik

mehr →

Hush City

mit App

Die Hush City-App runterladen, ruhige Orte in deiner Nachbarschaft eintragen und Wissenschaftler*innen und Stadtplaner*innen dabei helfen etwas gegen den Lärm in den Städten zu tun!

Stadt

mehr →

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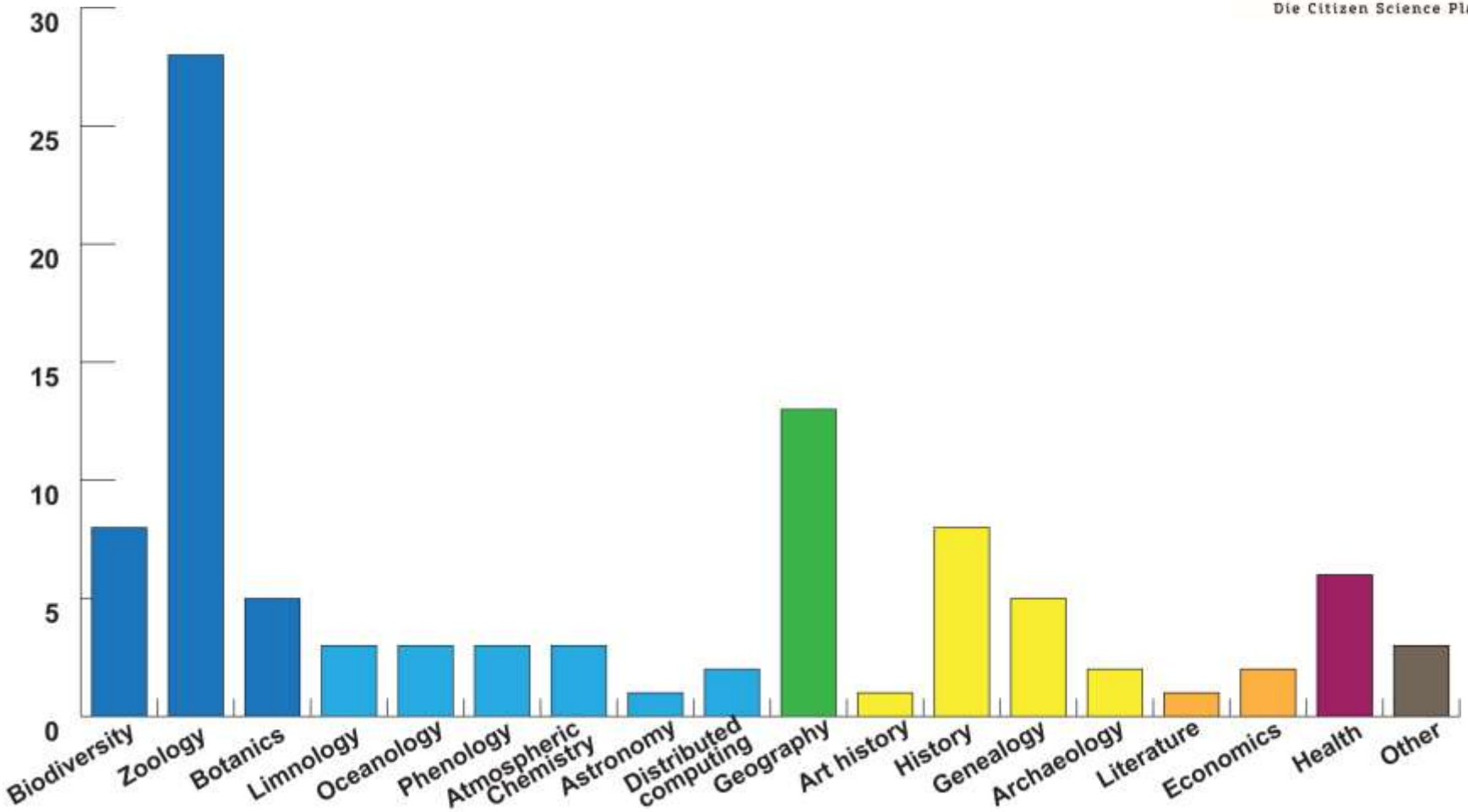
Bundesministerium für Bildung und Forschung

Spreading across diverse disciplines

Bürger schaffen Wissen
Die Citizen Science Plattform



Pettibone L, Vohland K, Ziegler D (2017) Understanding the (inter)disciplinary and institutional diversity of citizen science: A survey of current practice in Germany and Austria. PLoS ONE 12(6): e0178778. https://doi.org/10.1371/journal.pone.0178778

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Phase ONE 2014-16

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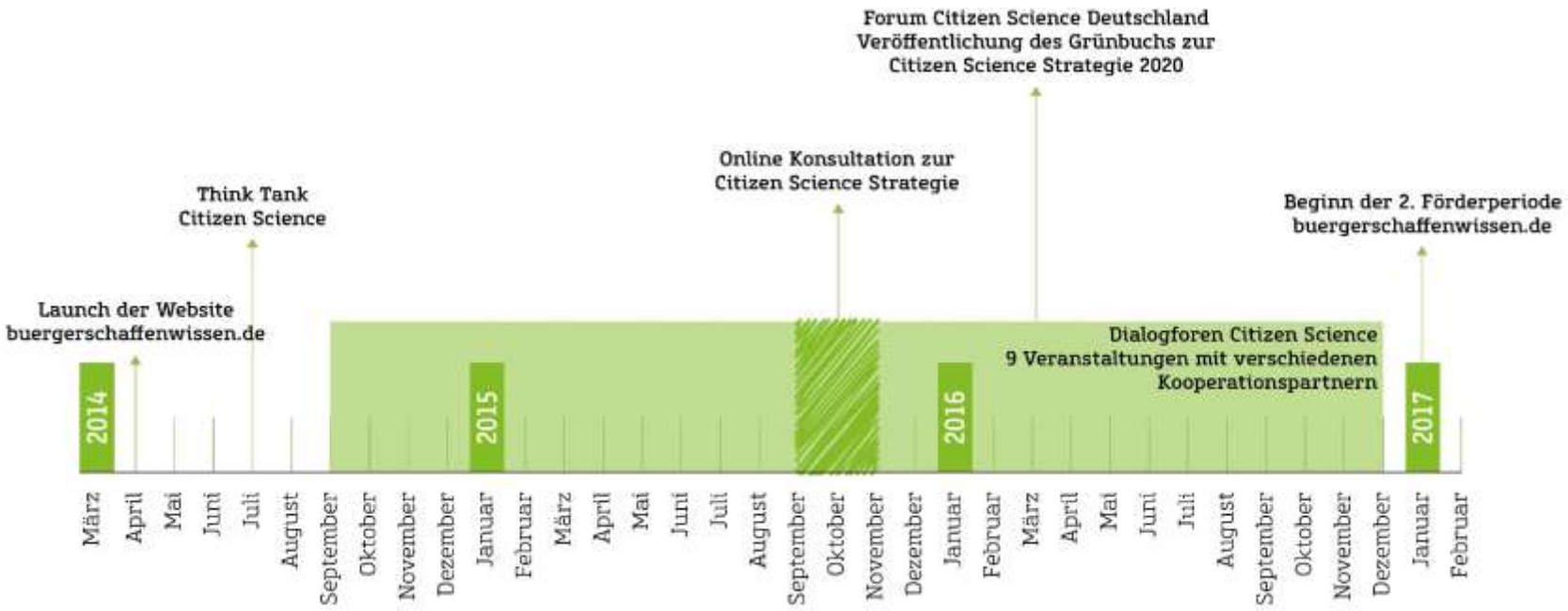
Die Citizen Science Plattform

Establishing online platform and CS network in close collaboration with GEWISS-consortium.



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Phase TWO 2017-19

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Die Citizen Science Plattform

- Consolidating and performing
- Rebrush & technical overhaul of homepage
- Growing the network
- Strategy process

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Phase THREE 2020-22

Bürger schaffen Wissen
Die Citizen Science Plattform

- Quality Control
- Capacity Building
- Strengthening and expanding the network, reach and impact

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What does the platform do

Bürger schaffen Wissen
Die Citizen Science Plattform

- Hosting and feeding the website *www.buergerschaffenwissen.de*
- …networking for and within Citizen Science
- …support and advice people how and interested, run or want to start Citizen projects
- …analyses and researches on Citizen Science
- …advocates and lobbies for Citizen Science

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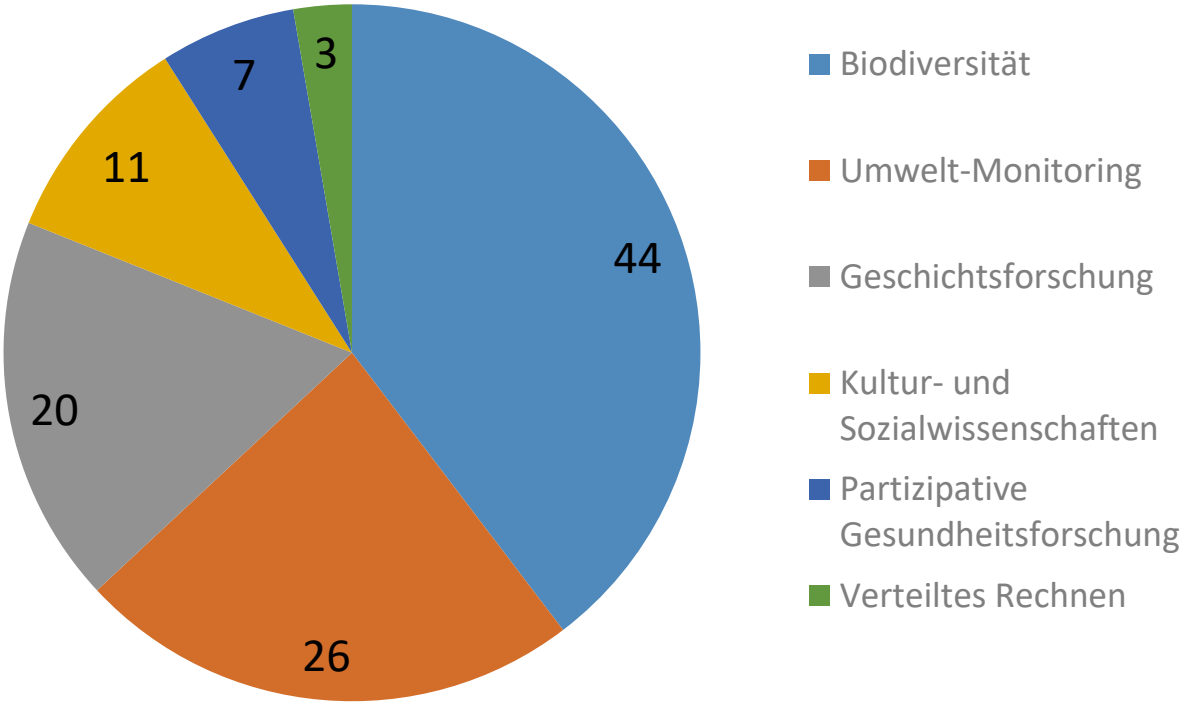
Bürger schaffen Wissen
Die Citizen Science Plattform

111 projects on platform (ten finished)



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Public engagement and advocacy

- Newsletter: 800+ subscribers
- Facebook: 1.396 fans / 1.419 subscribers
- Twitter: 2.302 followers

Networking & supporting

- 2 workshops + 1 Forum CS @ year

- 20+ advisory sessions since beginning of 2018 (DZ), incl.
  - Scientific organisations
  - NGOs
  - Adminsitrations & government
  - Media

- Memberships of (inter)national organisations
  - Qualitätskriterien (Österreich forscht)
  - Leibniz-AG Citizen Science
  - ECSA

Survey: Citizen Science Strategies in Europe

- pan-European Survey of Citizen Science Strategies and initiatives in Europe 2019
- joint initiative of the COST ACTION 15212 and the JRC
- Results based on th report by Marina Manzoni, Katrin Vohland, Claudia Göbel, Baiba Pruse, Sven Schade (doi:10.7479/myw2-9584)

Preliminary results

- **Geographical Coverage**: During April and May 2019, 43 replies were received from 31 European countries achieving a good geographical coverage, including eastern countries, and COST co-operating countries (Israel).
- **Terminology**: It was observed that both, the terminology used to describe CS practices, and the level of engagement from citizens, varies between all countries. Accordingly, also the perceived level of development declared by the respondents was not aligned to the same parameters (see examples used in the presentation).
- **Presence of CS practices** in Europe: official/institutional/authoritative CS Strategies at national level were identified only in a few countries (5), followed by local level and regional level, whereas most of them could not identify formal CS strategies.

Preliminary results

- **Areas and Disciplines of Coverage**: in most countries the areas where CS practices are present is Environment and Nature Protection (with pollution and biodiversity at the first place), but also land cover/use, Astronomy, Humanities, Social Science and Cultural Heritage. Half of them reported that CS practices are used to contribute some stage of the cycle for policy making processes. Emerging areas are Medicine and Health research, Smart Cities and Traffic, Economy, Arts and Historical sciences.
- **Actors and their roles**: Initiators are Scientific Institutions, NGOs/Associations/ Foundations and Self-regulated Communities whereas, funders are mainly Public Administration from National to Regional to Local level in decreasing order. The actual implementation is done by NGOs, Private companies and sectoral associations in the same decreasing order.

Preliminary results

- **Tool and methodologies:** As most used supporting tools and methodologies to support CS practices in Stakeholders Cooperation's of Practitioners (CoPs), Networks and Platforms, followed by training courses and tutoring, Guidelines and BPs and Gathering events are named. Policy documents and regulation or the availability of shared physical spaces are rarely mentioned
- **Impact on policy making processes:** in this context CS seems to affect first of all "resources" (Data) made available for policy making, followed by improving interactions amongst "actors", mostly on early stage "process" like early warning/anticipation and definition, followed by design, implementation and, lastly, monitoring, compliance and evaluation.

Preliminary results

- **Scientific impact** was observed especially with reference to Data Gathering and Science Communication, followed by Research Design, Software Development and Data Evaluation, whereas it is surprising to see Problem Definition lagging behind. This might suggest that citizens are not sufficiently engaged by the scientific society at the very beginning of research.
- **Impact on Society:** the first observations from the received responses suggest that CS is a tool for empowerment of citizens and the civil society in terms of (in order of importance); increase of scientific literacy, understanding of methodological research, improved collaboration, gathering evidence for documenting problems and identify alternative strategies for problem solving,
- **Economic impact:** at a glance impact in the economic sector seems to be perceived especially on the increase of social and technological innovation, followed by budget savings and consequent increase of budget availability to tackle additional issues of public concern.

Preliminary results

- **Pre-conditions** for CS successful development and sustainable engagement: increased relevance and impact, strong motivation, mutual benefits, common challenges, political will, efficient organization of stakeholders and agile bodies, long term funding, resources and alliances, mutual trust (scientist vs citizens vs policy), ICT as enabler, smart Data Governance including the need for robust QA and Impact Assessment frameworks, and adequate Feedback Mechanisms (policy vs scientists vs citizens).
- Generally, the **main obstacles to the application and mainstreaming of CS approaches to policy making processes, is awareness by policy makers**. Consequently, efforts should be invested at all levels to identify and promote the benefits of CS to policy making, which should lead to willingness in developing relevant strategies and long-terms sustainable plans.

Report: Citizen Science Strategies in Europe - preliminary findings from the pan-European Survey of Citizen Science Strategies and initiatives in Europe as part of a joint initiative of the COST ACTION 15212 and the JRC discussed in Cēsis, Latvia, 4th June 2019
https://doi.org/10.7479/myw2-9584

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