

# Leveraging off international Citizen Science Associations, projects & programmes to advance citizen science strategy, methods & best practice in New Zealand



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*Front cover image: Field trip to Warburg Nature Reserve with the Oxford Ornithological Society*

# 1 SUMMARY

## 1.1 Purpose & value

The fellowship enabled an investigation into the supporting ‘infrastructure’ for citizen science (e.g., associations, networks, centres, platforms and funding mechanisms). It also facilitated exploration of how existing projects can be designed to meet research, engagement, education and advocacy objectives.

### *Interviewees were diverse & discussions in-depth*

I had met some of the interviewees previously at conferences and other events over the last 5 years, although most meetings on the trip were with new contacts. These were made using a snowball method (i.e. suggestions from existing contacts) as well as general web searches. In the end, interviewees comprised a broad range of researchers and research managers, project developers, coordinators, engagement and communication specialists as well as educators.

### *The research trip yielded multiple values*

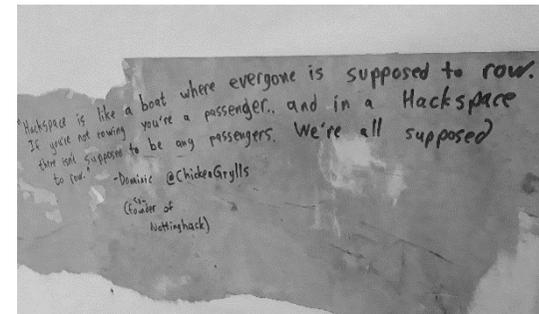
The chief value of the Fellowship was having the time to sit down with colleagues for in-depth discussions across diverse themes. General discussion themes were brought together prior to travel, and new topics raised in the course of discussion which were then reflected on in later discussions with other contacts. The discussions shed light on the complex landscape of relationships between citizen science stakeholders, their institutions, partners, funders, outputs (e.g., databases) and projects. The discussions also elucidated organisational internal structures (e.g., working groups and their topic areas within the citizen science associations, centres and networks). Most of this information could not have been gleaned from web searches – especially given the rapid pace of development in the field. The information gathered will help shape citizen science in NZ. It also places us (with our fledgling Citizen Science Assn. of Aotearoa NZ) in the global picture. We don't need to reinvent the wheel here - there is plenty to learn from our international colleagues and partners.

## 1.2 Research outputs

The main output comprised 11 location-based blogs published over the course of the 5 weeks (<https://monicalogues.com/category/winston-churchill-memorial-trust-2019/>). Each post summarised meetings with key contacts, events attended, and places visited, running chronologically and based on geographic location. Blog content was sent back to interviewees for verification. A final ‘thematic’ blog (#12) was published after the location blogs and is based on Section 1.3. Blogging kept all information relating to this research trip fully public –



Meeting with Kerry Pereira and Mei Yee Sung (both from Nature Society, Singapore). Photo: Anuj Jain (Birdlife International).



Philosophy of the London Hackspace (according to one of the members).

appropriate given openness and transparency are key principles for citizen science. Three presentations on the current state and future potential of citizen science in NZ were also delivered (in Singapore, Oxford and Berlin). The Singapore presentation was recorded and made available for dissemination via CitSciAsia. Some engagement with other forms of social media took place, e.g., blog releases were advertised via a Citizen Science NZ Facebook page and a personal Twitter account.

### 1.3 General findings and observations

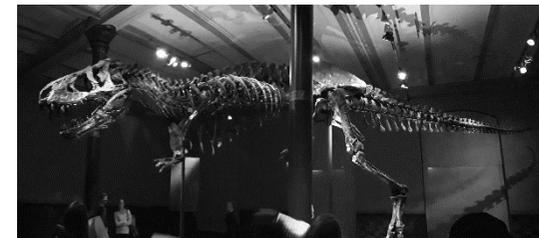
The following section summarises points raised over the 5 weeks of travel to Singapore and Europe. While there are many contrasts to the current state of citizen science in New Zealand, it is also important to acknowledge that the diverse associations, centres, networks and platforms in Asia, Europe and elsewhere are still evolving, just as the methods for involving the wider public in research also evolve. The maturation of existing large-scale projects and development of new initiatives will continue broadening the scope of citizen science. Although there are major differences in the scale in structure of citizen science as well as organisations supporting and carrying out research between NZ and Europe, the focus on meaningful engagement that leads to participant empowerment and research of greater impact is shared across nations.

*In Singapore and in some European countries, citizen science is (mostly) supported by a strong infrastructure*

- Support for, and integration of citizen science across different countries is variable. For example, England has a strong history of biological recording which sets the scene for citizen science.
- Networks in Asia are evolving with as CitSciAsia gathers momentum.
- The interrelationships between networks, associations, platforms/databases are complex and multi-layered. Each citizen science entity (e.g., association, network, platform, project) operates at different scales (regional, national and international), but all generally seek to foster communication and collaboration with public participation, educational and scientific research goals.
- Universities, learning and research institutes (such as museums) provide strong foundations for citizen science initiatives by providing infrastructure for projects (e.g., admin, staff time) and organisations such as the European Citizen Science Assn. (ECSA).
- External support from recognised institutions such as universities and Natural History Museums enhances the credibility of citizen science associations and networks. The Austrian Citizen Science Network found a basic Memorandum of Understanding helped build credibility of the organisation along with formal recognition from their host institution (University of Natural Resources and Life Sciences - BOKU).
- Partnerships and funding from education and/or science-based government ministries has enabled the development of the Austrian Zentrum für Citizen Science and Bürger schaffen Wissen in Germany. The



*Being based at Berlin Museum of Natural History provided time to read several chapters of the published following the first European Citizen Science Association Conference in 2016*



*The impressive T-Rex displayed at the Berlin Museum of Natural History*

Citizen Science Centre in Zürich, Switzerland is supported by the Swiss Federal Institute of Technology Zürich and the University of Zürich.

- Internships and student-helpers support initiatives such as ECSA deliver outputs by contributing time to flagship projects (e.g., [D-Noses](#)).
- ECSA Working Groups highlight the breadth of citizen science activities underway in Europe and beyond: Sharing Best Practice and Building Capacity; Projects, Data, Tools, and Technology; Policy, Strategy, Governance and Partnerships; Learning and Education in Citizen Science; Citizen Science and Open Science; Empowerment, Inclusiveness, Equity. Narrower (project) topic areas include BioBlitzes; Global Mosquito Alert and Air Quality.
- Institutes forming part of the Viennese Ludwig Boltzmann Gesellschaft actively foster new participatory approaches to science with and for the wider public. The focus of their work extends into many newer fields for citizen science including medicine, social, cultural and life sciences.

*Projects are becoming increasingly diverse as a shift occurs in the approach to research and public engagement*

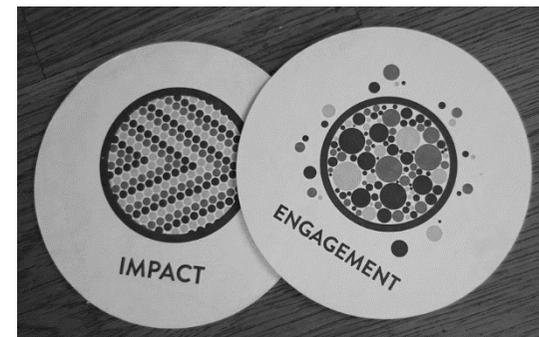
- Within Europe a strong gradient exists with citizen engagement (e.g., in science and environmental decision-making) across countries owing to cultural and historical factors. This invariably creates challenges for multi-national projects. Opportunities for knowledge-sharing (e.g., workshops) are typically built into large-scale projects to build capacity and understanding between participants from different countries.
- The range of socio-cultural citizen science projects is growing in Europe as well as experimental projects that connect art and creativity to scientific practice.

*European citizen science projects can be large-scale and complex*

- Large pan-European funding (e.g., Horizon 2020) provides opportunities for projects at huge scale – DITOS and the 500 events carried out over the 3y duration of the project is just one example; D-Noses which investigates odour pollution is another.
- The ability to move quickly and easily between European countries means peer-to-peer networking is frequent and easy and is supplemented by online meetings. The COST (European Cooperation in Science and Technology) action programme provides 4 years of funding from the EU to support networking activities, such as working groups, conferences, workshops, short travel expenses and joint publications. Although no funding for research is included, an output of the [‘Citizen Science to promote creativity, scientific literacy, and innovation throughout Europe’](#) COST action will be a book that brings together participants’ experiences given the diversity of countries involved and the different ways in which citizen science is understood and developed.



*Red-legged partridge – one of the species native to the UK seen on the field trip with the Oxford Ornithological Society. Image: Tony Morris CC BY-NC 2.0*



*‘Beer mats’ designed to remind participants about key science research aims. An idea from the Ludwig Boltzmann Gesellschaft*

- Multiple partners from many different countries in the EU add layers of complexity to projects – given the necessarily collaborative nature of projects. This means that resources, surveys, feedback etc. all need to be translated into local languages and then back into English.
- The 299 Austrian Sparkling Science projects carried out have partners spread throughout Europe, as well as Africa, Asia and the US.

*The cultural and historic connection to nature has implications for environmental project design*

The relationship to the natural world and biodiversity differs markedly among cultures. In Singapore, for example, there is a very limited amount of wilderness that can be accessed and consequently very limited cultural harvest of natural products. This has implications for environmental citizen science project development and participant engagement. However, this can also be a drawcard – sampling in muddy coastal environments has proved to so novel for urban Singaporeans that participation has been limited to protect the sampling sites. In England by comparison there is a long history of bio-recording and a network of centres with databases for biological data.

*There are multiple learning opportunities for citizen science history, philosophy and practice*

The University College of London offers a free online introductory course in [‘Citizen Science and Scientific Crowdsourcing’](#). However, there are an increasing number of short-term training opportunities in Europe. Recent events include:

- The Earthwatch-led [‘NERC Community for Engaging Environments’](#) programme. The 5-day event will eventually be delivered in day-long modules, enabling participants to learn content at more strategic stages of their research journey
- Over the 2019 summer, another week-long training event [‘Citizen Science – Innovation in Open Science, Society and Policy’](#) took place in Germany, delivered by the German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig in cooperation with the Helmholtz Centre for Environmental Research (UFZ)
- A 5-day programme on [‘Citizen science in theory and practice’](#) was hosted by the Vienna Doctoral School Cognition, Behaviour and Neuroscience (University of Vienna), delivered by a range of coordinators, researchers and leaders from different countries.
- The Citizen Science Awards administered by the Austrian Centre for Citizen Science is a novel way to reward participation in citizen science projects.

*Evaluating projects and funding programmes*

Building an ‘evaluative culture’ is the first step toward developing processes for evaluation to take place as part of a project journey. For example, evaluations to track progress at 3 stages throughout Austrian Sparkling Science



*Workshop on legal aspects project/programme development at the Forum Citizen Science Event in Münster*



*Participatory art-science workshop at the Forum Citizen Science event investigating the effects of ergotism*

projects (i.e., beginning, middle and one month after completion) were standard practice. Research ‘impact’ surpasses basic delivery of outcomes and will increasingly be used to determine the overall value of citizen science initiatives.

#### *Citizen science scope and boundaries are still contested*

Active debate continues around what constitutes citizen science and is likely to remain contested as the field continues to grow. The goal of the Working Group on Citizen Science Networks is to frame transparent criteria that will help determine whether projects should be listed on citizen science platform/databases. The purpose is to facilitate the exchange of projects between networks and enhance project comparability.

#### *Citizen science outputs are broad, and may have long term implications*

- University support ensures that peer-reviewed publications are produced and publicized, often on open access platforms. This ensures that data are not lost or hidden in reports with limited circulation.
- Connection to and buy-in from industry means projects such as D-noses have scope to create change on the ground extending beyond awareness-raising of issues and data collection.
- There is a much stronger interface with policy overall – both at an organisational level (i.e. ECSA) and at a project level (e.g., DITOS and D-Noses) where policy development is an important goal.
- Citizen science is making important contributions to global initiatives (e.g., Mosquito Watch; citizen observatories) with much potential to contribute to the UN Sustainable Development Goals.

## 2 SINGAPORE (Sept 15-19)

The original intention had been to fly via Hong Kong to meet with Mendel Wong, founder of CitSciAsia – one of the newer citizen science associations to have emerged over the last 5-7 years. A presentation was also scheduled at one of the city’s regular Sci Cafe events. However, politics intervened, resulting in an itinerary change to Singapore. New meetings were scheduled via CitSciAsia and colleagues in NZ with contacts in Singapore Park Service. I was able to meet with Joy Wong (National Parks Board, Singapore) to conduct a butterfly survey (2 x 200m transects) as a part of Butterfly Watch. This is one of four citizen science projects being run by the parks service. I also delivered a presentation to staff with Q&A session (see Appendix 1). To make content more widely available, a video recording was shared with CitSciAsia. To gain insight into other citizen science initiatives, I also caught up with Anuj Jain (Birdlife International), Mei Yee Sung and Kerry Pereira (Nature Society, Singapore). It was also an opportunity to better understand similarities and differences between NGO and gov’t-led citizen science – in this case mainly centring on public accessibility to data generated by participants. I also used the time



Detail from the Micrarium – slides of minuscule plant and animal matter at the Grant Museum of Zoology in London

to visit the World Heritage-listed Botanical Gardens and Centre for Ethnobotany, Artscience museum and Sungei Buloh wetlands.

## 2.1 Blog posts

WCMT Citizen Science Research Trip: [Investigating Singapore's wetlands, butterflies and trees](#)

WCMT Citizen Science Research Trip: [A glimpse into Singapore's NGO citsci programmes](#)

## 3 OXFORD (Sept 20-25)

I spent a few days in Oxford and was able to connect with the Oxford Ornithological Society to carry out an avifauna species count at Warburg Nature Reserve. Some species were familiar, given their introduction to NZ by early settlers. I also caught up with Gary Lock at the University of Oxford for a discussion on the development of the Hillfort database and the science engagement and data collection component carried out by volunteers. The team at Earthwatch, Luigi Ceccaroni (Research impact Manager), Stephen Parkinson and Kat McGavin (Learning Manager/Coordinator), were very welcoming. I gained a clearer insight into the range of programmes underway and shared a presentation on citizen science activities underway in NZ (similar to the Singapore presentation). As my trip coincided with an Oxford Ornithological Society field trip, I used the opportunity to investigate participant motivation and learn a little more about British avifauna in semi-rural settings.

### 3.1 Blog posts

WCMT Citizen Science Research Trip: [Exploring Oxford and surrounds](#)

## 4 MÜNSTER (Sept 25-29)

Quite by chance, the annual Forum Citizen Science event took place at a time when I could attend without too much schedule rearranging. The event brought together project coordinators, researchers and educators from Germany, Switzerland and Austria for a predominantly German-speaking series of presentations and workshops. I was able to briefly meet with ECSA contacts who would not be in Berlin during my visit and be updated on their project activities.

### 4.1 Blog posts

WCMT Citizen Science Research Trip: [#ForumCS Münster, Day 1](#)



Map of Vienna, a city of around 1.2 million inhabitants



The United Nations Headquarters in Vienna



Sparkling Science projects and partners across Europe

WCMT Citizen Science Research Trip: [#ForumCS Münster, Day 2](#)

The Bürger schaffen Wissen website which hosts the Forum Citizen Science event also contains links to the above blog posts along with impressions and learnings from the event. The link to the site is [here](#).

## 5 LONDON (Sept 30–Oct 3)

The timing of Forum Citizen Science meant that time was limited in London. I did however meet with Artemis Skarlatidou (Snr Researcher) and Gulbala Salamov (Snr Research Fellow) for an overview of the aims and focus of the Extreme Citizen Science programme at University College London. In the evening, I visited the London Hackspace and was given a tour around the different workshops after a long discussion with trustee Simon and long-term member, Erika Calogan. A quick visit to the nearby Grant Museum was also scheduled. The following day I met with Hannah Sender (Citizen Science lead) and Ben Anderson (Data Analysis and Research Team lead) for an overview of projects and processes used on the social science centred urban renewal projects underway through the London Prosperity Initiative.

### 5.1 Blog posts

WCMT Citizen Science Research Trip: [Extreme #citsci and extreme museums, London Day 1](#)

WCMT Citizen Science Research Trip: [#Hackspace and social #citsci, London Day 2](#)

## 6 BERLIN (Oct 3–14)

Berlin was on the itinerary being the main office of the European Citizen Science Assn. With office space and administration provided by the Museum der Naturkunde (Natural History Museum), I could also explore the voluminous collection. I met with Tim Woods (Communication), Volker Shönert (Visitor Research) as well as 2 students working part-time for ECSA on projects including next year's conference in Trieste. I also liaised with Vanessa van den Bogaert from Bürger Wissen Schaffen for an overview of the platform and received a general overview from Dr. Katrin Vohland, Chair of Cost action programme: citizen science strategies across Europe and Head Research Programme Public Engagement with Science, Museum für Naturkunde. I also delivered a lecture as part of the Museum's lunchtime seminar series.

### 6.1 Blog posts

WCMT Citizen Science Research Trip: [Evaluation and Berlin's marvellous Museum of Natural History](#)

WCMT Citizen Science Research Trip: [ECSA, German #citizenscience platforms and networks](#)



*The membership card maker at the London Hackspace: another in-house project using spare/discarded parts*

## 7 VIENNA (Oct 14-19)

Vienna was the final destination for the research trip. I had met Daniel Dörler and Florian Heigl (Founders of Österreich Forscht, University of Natural Resources and Life Science, Vienna) earlier in the year as they had invited me as a keynote speaker to the 5th Austrian Citizen Science Conference. Meeting once again, events occurring since the June Conference were discussed. I also attended an evening presentation by Daniel and Florian at the Planetarium, introducing citizen science to members of the public and showing how they could become involved. I also met with Marika Cieslinski (Project Manager for Public Science) at the Austrian Centre for Citizen Science – one of several such centres in the German-speaking parts of Europe for a discussion on the various programmes the Centre administers. The final meeting took place at the Ludwig Boltzmann Gesellschaft with Benjamin Missbach (Project Manager: Open Innovation in Science) and Daniel Spichtinger (Project Manager: Leveraging Research Data Re-Use) gaining insights into methods used for encouraging greater public participation in humanities and health-related research projects. Visits were made to the United Nations Complex.

### 7.1 Blog posts

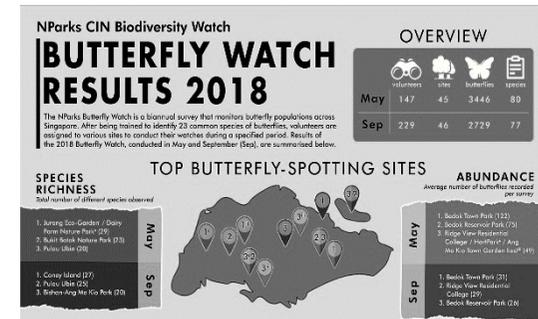
WCMT Citizen Science Research Trip: [Austrian #citsci infrastructure, Vienna Day 1](#)

WCMT Citizen Science Research Trip: [Austrian #citsci infrastructure, Vienna Day 2](#)

## 8 Next Steps

The [Citizen Science Association of Aotearoa NZ](#) or CitSciNZ was formalised shortly before to my departure on the WCMT Fellowship. I was elected Co-chair and am using the knowledge gained during my Fellowship travel to contribute to CitSciNZ activity. For example, a report is underway that outlines the current place and potential of citizen science in NZ as viewed through government ministry and agency documents. It was begun last year and is currently being developed by myself and the Co-chair. We are in discussion as to the scope of the document and the level of detail that should be included and expect to have this completed mid-year. The PMs Chief Science Advisor, who is supportive of CitSciNZ, has offered to house the Report on the OPMCSA website. It will also appear on the CitSciNZ website.

I am organising a [Citizen Science Symposium](#) at the NZ Ecological Society Conference in Kerikeri (June 5-7), which will go part way to assessing citizen science learning needs among ecologists from NZ. The Report and the Symposium will inform CitSciNZs approach developing citizen science in NZ.



Section of an infogram produced by the Singapore Parks Board to share data on the citizen science Butterfly Watch Programme



Botanical gardens tour in Münster following the Forum Citizen Science event

# [SEMINAR] Community-led Conservation and citizen science in New Zealand: evolution, expansion and what next?



**Monica Peters, PhD** works freelance at the interface between science and the public on diverse community conservation-focused projects throughout New Zealand. She is a founding member and Co-Chair of the new Citizen Science Association of Aotearoa New Zealand.

**SEP 17 (TUE)  
3 - 5 PM  
ROSEWOOD ROOM  
CUGE, HOUSE 3**

## SYNOPSIS

Citizen science, both as a social movement and research method, has emerged as a powerful means to enhance traditional scientific research. Well-designed studies can fill important knowledge gaps in addition to fulfilling public engagement and educational goals. In NZ, citizen science commonly takes the form of community-based environmental monitoring carried out by not-for-profit biodiversity conservation groups. Also, a national programme to create 'Predator or Pest-free' landscapes is steadily growing momentum. This ambitious initiative has mobilised countless citizens to become actively involved in mammalian predator control and pest plant control while also increasing public awareness of the crises our native species currently face. The seminar will outline the evolution of community-led conservation and environmental citizen science in NZ. An insight into how citizen science is expanding into other fields will also be provided. Key challenges facing citizen science and community-led conservation will be highlighted and recommendations given to strengthen support for both activities.

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