



Citizen Science Toolkit

The Toolkit

This toolkit has been developed by The Conservation Volunteers as a simple, practical guide to getting involved in Citizen Science in your local area. It offers examples of surveys you can get involved in, ideas to develop your own projects and useful contacts who can provide help.

What is Citizen Science?



The term 'Citizen Science' describes the involvement of volunteers in scientific research. Citizen Science is a relatively new term, but amateurs have been participating in, and contributing to, scientific research for years. It can be a great way for people to learn about their local environment and also contributes important data for scientists. Including the collection of biological data and environmental observations it is 'an indispensable means of combining environmental research with education and wildlife recording' (UK-EOF).

Citizen Science can be used in a number of ways:

- For individuals to learn more about their local environment.
- As encouragement for people to get outside, improving their health and wellbeing.
- Incorporated into outdoor learning and nature based activities for school pupils, youth and community groups.
- Communities can carry out Citizen Science activities in the greenpaces they own, manage or use. This can be a great way to inform management decisions, involve more people, develop skills and knowledge and empower community groups to play an active role in local environmental decision making.

Why Citizen Science

Citizen Science offers a wealth of opportunity for adventure, discovery and learning. The natural world and our local environment plays a vital role in our daily lives, providing clean air and water, food and fuel, and offering a place to escape. Unfortunately, modern living has gradually put biodiversity under strain. Our environment faces many threats, from industrialisation, development and climate change not to mention the pests, diseases and invasive species which harm native wildlife.

By taking part and recording essential data as a member of the public you are contributing towards hugely valuable datasets. Citizen Science gathers vital information for science, for example by recording lichens as a way of understanding air quality, even highlighting local pollution or by counting the bumblebees which visit your garden to understand climate change.

Your local area is the perfect location to become involved in Citizen Science. You don't have to travel far, some surveys require you to record the changing of the seasons – perfect if you walk a regular route to work, or walk your dog.

There are so many Citizen Science projects available, most suitable for beginners and range from online surveys, paper forms and smartphone apps. They cover everything from bugs to butterflies and beaches to bumblebees.

Citizen Science Projects

Interested in PLANTS...?

The National Plant Monitoring Scheme (NPMS): This annual survey tracks ecosystem health and the results feed directly into government monitoring strategies. Volunteers record species in a randomly allocated 1km grid square. It can be done at 3 different levels, depending on your current knowledge. Volunteers are required to register. Training and resources are provided and the data is entered online.

The Great British Wildflower Hunt: A very accessible survey for all the family, results can be uploads via the app. Download easy to use spotter sheets for either: County, Woodland or Town and mark off the species you come across.

Juniper Survey: Launched in 2014, this survey aims to increase understanding about the decline of juniper. The survey is simple to complete and requires no expertise, other than the ability to identify the species. A further, more detailed level of survey is available in order to determine juniper plant health, where signs of browning on branches is assessed. This enables land managers to understand the health of their juniper population.

Find out more

These surveys are all run by Plantlife – <http://www.plantlife.org.uk/>



Interested in POLLINATORS...?

Big Butterfly Count: This nationwide survey runs for 6 weeks every July and August. You choose a location and count the number of butterflies you see during a 15 minutes period. Records can be submitted via the Butterfly Conservation website or an App. This is a really accessible project and an ID guide is provided to help volunteers with identification.

Butterflies for the new Millennium: Volunteers visit a 1km site at least four times during the season. A basic level of identification is required, though volunteers can attend training workshops to develop their skills. An iRecord App is also available for identification and to submit data. By taking part, you will contribute to the largest dataset of its kind, containing over eight million butterfly records.

Find out more

These surveys are run by Butterfly Conservation – get in touch via: <http://butterfly-conservation.org/>

Great British Bee Count: Ran by Friends of the Earth this survey runs throughout the summer months, comes with a handy app to identify and record sightings, and plenty of easy to use guides on the website. Record your sightings and contribute to the national picture.

BeeWatch: A simple survey to identify which plants are best for bees. Take a photo of a bee on its food plant and submit via the website. Comes with an online training tool to help improve bumblebee ID and advice on which flowers to have throughout the year to support a wider range of species.

Polli:Nation: Ran by the excellent Open Air Laboratory project from Imperial College London this survey asks you to sample three habitat areas for the number of pollinators which visit over a set period of time.

Find out more

Great British Bee Count details and app download found at - <https://friendsoftheearth.uk/bee-count>

BeeWatch from Aberdeen University at www.adbn.ac.uk/research/beewatch

Polli:Nation and all other OPAL surveys from <http://www.opalexplorenature.org/>



Interested in BUGS...?

OPAL Bugs Count: This survey is a favourite with groups and children. It gathers information on invertebrates in several different habitats.

Buglife: The invertebrate charity Buglife run a whole series of surveys on specific species throughout the year on things like Oil beetles, Pond mud snails and Stoneflies.



UK Ladybird survey: Submit data using the online recording form. This survey aims to facilitate recoding of all species of UK ladybird, including easy to use ID guide, and information on invasive species.

Scottish Spider Search: A nice simple survey focusing on four species of spider including the Zebra spider and Nurseryweb spider. Postcard style recoding forms are available, or online submission. Aims to track the reach of common species in Scotland.

Find out more

Get in touch with Buglife <https://www.buglife.org.uk/>

Ladybird survey, online form and identification guide at <http://www.ladybird-survey.org/>

Information on Scottish Spider Search to be submitted via The Wildlife Information Centre form at www.wildlifeinformation.com/scottish_spider_search.php



Interested in BIRDS...?

Big Garden Birdwatch: The RSPB runs one of the biggest annual Citizen Science events of the year every January. This is normally done in your garden but can be done in a local park or woodland and is a great way to get new people involved with Citizen Science.

BirdTrack: This is a simple system to record birds you have seen. The programme is ongoing year-round and anyone can participate, recording sightings at any location of their choice. You can record any species you see, so it is suitable for novices or more experienced birdwatchers. You can submit your findings online and by smart-phone app.

Nest Record Scheme (NRS): This scheme has been running since 1939, and helps to investigate changes in breeding success over time. It is simple to take part in and you can start by monitoring just one nest.

Find out more

Contact the RSPB for Big Garden Birdwatch <https://www.rspb.org.uk/get-involved>

Get in touch with the British Trust for Ornithology for BirdTrack and NRS <http://www.bto.org/>

Interested in TREES...?

Observatree: The project aims to help identify tree pests and diseases at the earliest possible stage. The project aims to work with informed volunteers so involvement requires commitment and training though casual recording is possible and the Observatree site provides guides to support that. Records can be submitted through TreeAlert website and App.





Ancient Tree Hunt: This is a simple and accessible survey can be carried out by anyone and submitted via the website. It is suitable for participants of any age and is supported by excellent educational resources.

OPAL Tree Health Survey: Another Open Air Laboratory project which gathers information about 12 diseases found in oak, ash and horse chestnut trees. Resources are substantial and easy to follow.

Find out more

Get in touch with the Woodland Trust

<https://www.woodlandtrust.org.uk/>

All OPAL surveys found at <http://www.opalexplornature.org/>

Interested in MAMMALS...?

National Bat Monitoring Scheme: The Bat Conservation Trust runs a survey programme covering many different areas to comprehensively track the breeding, feeding and roosting behaviours of all bat species. Some training is required and you can sign up to volunteer at any time.

Hedgehog Street: Help map sightings of live and deceased hedgehogs across the country and also record if you've help create a hedgehog highway, by cutting a hole in your garden fence to expand habitat range. You can become a hedgehog champion and encourage a neighbourhood campaign to make your area more wildlife friendly. You will need to register for free to record sightings.

Whale and Dolphin Conservation Trust: With training given by the Society you can volunteer for a number of roles including educational speaker and residential volunteer at the centre in Spey Bay.

Find out more

All bat surveys and information is at <https://nbmp.bats.org.uk/Surveys.aspx>

Hedgehog mapping and the free registration process online at <https://www.hedgehogstreet.org/>

Whale and Dolphin information <https://uk.whales.org/support-us/volunteer-with-wdc>

For general mammal surveys including the National Mammal Atlas, mapping sightings of all UK mammals visit - <http://www.mammal.org.uk/science-research/surveys/>



Interested in AQUATIC SURVEYS...?

OPAL Water Health survey: Another by OPAL which uses the aquatic invertebrates found while pond dipping to measure the health of the water. Recording pH levels and water clarity add to the full picture of aquatic health. Upload results via the website portal.

Riverfly Monitoring: A survey which does require some training but is very rewarding. The monitoring of aquatic life in rivers is extremely important in determining the health and quality of the waterbody. This survey asks for the recording of certain species of riverfly and is aimed at anglers.

Community Flooding volunteering: This form of environmental monitoring is available in a few community areas across Scotland. The Conservation Volunteers has been working with local volunteers to help educate and equip areas with flood prevention plans and defences.

Find out more

OPAL Water Health at www.opalexplornature.org/

The Riverfly Partnership runs the riverfly monitoring programme, to request more information visit <http://www.riverflies.org/rp-riverfly-monitoring-initiative>

Information of the locations of current flood volunteering programmes can be found on the TCV blog <https://blogs.tcv.org.uk/tcv-scotland/citizenscience/2017/02/16/citizen-science-community-river-monitoring-volunteer-project/>

Interested in GENERAL SURVEYS...?

Nature's Calendar: This survey gathers data on seasonal events that show the impact of climate change on wildlife. Volunteers record data on specific species and events, chosen because they may be well-loved, easily recognised or respond rapidly to climate change. You need a basic level of knowledge, but there are comprehensive resources and ID guides. Data is recorded online and you can view a map of results.

OPAL: The Open Air Laboratory project supports a range of accessible surveys, some mentioned earlier. They all provide excellent downloadable resources and are accessible to all. Others include:

Soil & Earthworm survey: Gathers information on the quality of soil by recording the types and abundance of earthworms found among other data.

Air Quality survey: Gathers information about air quality through studying lichens found on trees and also by looking for tar spot fungus on sycamore leaves.



Find out more

The Nature's Calendar survey is carried out by the Woodland Trust <https://www.woodlandtrust.org.uk/>

For more information about the OPAL surveys, see <http://www.opalexplornature.org/>

Pick of the Apps

Smart phone apps can be a great way to get involved in Citizen Science projects. They provide identification guides, support and advice and allow you to record and send your results from your phone. Here are a selection of the best.

iRecord: <https://www.brc.ac.uk/irecord/>

This website and associated phone app facilitates the sharing of wildlife observations, including associated photos – you can register quickly and for free. The easiest and quickest way to upload is through the app and once registered you can add your own biological records for other to see, and see the national map of sightings.

Big Butterfly Count: <https://www.bigbutterflycount.org/>

Companion to the Big Butterfly Count which is the easiest way to submit results after the 15 minute timed count and also provide great identification photo guides. By having the app handy you can upload results on the go.



Project Splatter: <https://projectsplatter.co.uk/>

This project maps UK roadkill across all species including mammals, birds, reptiles and amphibians. It is vitally important for us to understand the impact of the road network on our wildlife, including highlighting roadkill hotspots in the hope that measures can be put in place to reduce the number of animals harmed.

Ashtag: <https://www.ashtag.org/>

This project aims to help with the problem of Ash-dieback disease. You become a steward of a particular tree and attach a numbered aluminium geotag (provided in an online pack available to buy). Then use the app to record data about the health of their tree and submit a photo.

Trealert: <http://www.forestry.gov.uk/trealert>

this app gathers data on symptoms of serious threats to Ash, Oak, Pine, Spruce and Horse Chestnut trees. The app (and online facility) provides a guide to symptoms and enables volunteers to report sightings.



OPAL tree health survey app: <http://www.opalexplorenature.org/tree-health-app>

enables volunteers to identify and learn more about pests and diseases related to oak, ash and horse chestnut trees and signposts volunteers to record serious threat via Treealert.

PlantTracker: <http://planttracker.naturelocator.org/>

this project gathers data about non native invasive species. An app (and online facility) provides guidance to support identification of invasive species. Volunteers participate by providing information and submitting a photograph.

iSPOT: <http://www.ispotnature.org/communities/uk-and-ireland>

this is not, strictly speaking, an app. But it is a website, which allows you to take photos on your phone, and upload them to get help from a community of experts in identifying the species.

Set up your own project

Citizen Science can also be about individuals and communities who have their own project ideas and goals.

You might be involved in a project to and wish to engage the local community through practical learning. Citizen Science can be a great way to do this – for example through a ‘Bioblitz’ event, where a group of people come together on a given day to collect a wide range of information about a site.

You could use the surveys and apps already discussed to help with any of these ideas. You could also consider designing your own surveys and projects. TCV has extensive experience of using Citizen Science to engage communities and would be happy to help support your ideas. Please take a look at our Citizen Science webpages which have a wealth of ideas as well as reports and case studies from our community Citizen Science projects. <http://www.tcv.org.uk/scotland/discover/citizen-science>

How do I find out more?

TCV can provide training to develop your skills and confidence to carry out Citizen Science in woodlands and advice on all aspects of Citizen Science. Please get in touch for any further help or advice:

Email: a.malcolm@tcv.org.uk and kirsty.crawford@tcv.org.uk

Facebook: TCV Scotland

Twitter: @TCVCITSCI

