Sparrow Swap

_Caren Cooper - North Carolina State University and SciStarter_

Sparrow Swap has two scientific goals. The short-term goal is to help bluebirders identify the most effective techniques for minimizing house sparrows damaging bluebirds. The long-term goals are to create a resource for research, an egg collection at the NC Museum of Natural Sciences, and evaluate the efficacy of using house sparrow eggs as biomonitoring tools to highlight pollution hotspots. Sparrow Swap has received egg specimens from hundreds of clutches across 20 states. About 70% of participants followed an experiment by swapping egg replicas for real eggs, and all participants monitored the outcomes within each nest box.

NatureNet

_Carol Boston - University of Maryland_

NatureNet enables community-developed, technology-supported environmental projects and activities that point the way to citizen science. The NatureNet mobile app and website (nature-net.org) allow people to make local observations, comment on others' observations, and suggest design ideas and challenges--including new activities and technology enhancements--to guide the evolution of the platform. Current contexts are watershed stewardship groups and nature centers. The goal is to empower those participating in informal environmental education, including underserved groups, to become leaders in shaping projects to improve local environments. AISL: Community-Driven Projects That Adapt Technology for Environmental Learning in Nature Preserves NSF #1423207, 1423212, and 1423338

Learning to See, Seeing to Learn: Designing Macroinvertebrates.org

_Marti Louw - Carnegie Mellon University_

Training citizen scientists to accurately identify insects for water quality biomonitoring is a perennial challenge. To address this challenge, we are developing a comprehensive online teaching collection of explorable high-resolution, annotated images of the 150 mostly commonly found aquatic macroinvertebrates in the Eastern United States. Through an iterative codesign process with entomologists, learning scientists, designers, trainers, and volunteers themselves, this open educational resource will support development of aquatic macroinvertebrate observation skills and identification expertise. By improving volunteer accuracy, confidence, and engagement, our shared goal is to improve water quality monitoring outcomes for volunteer groups' and expand volunteer-produced data use.

Snapshot Safari

_Meredith Palmer - University of Minnesota_

Although camera-traps are revolutionizing the fields of ecology and conservation, many current studies are short-term and focus on only a single target species. We are implementing standardized, long-term camera-trapping projects throughout Africa using the paradigm of Snapshot Serengeti, which will enable ecological comparisons on dozens of species across habitat types, community compositions, and management strategies. This project produces an unparalleled dataset which is made available to scientists, conservationists, and educators. We will use this project to engage community members, educate locally and abroad, and to introduce online volunteers to the vast array of biodiversity present across the African continent.
The Chesapeake Monitoring Cooperative

*Alexandra Fries - University of Maryland Center for Environmental Science*

The Chesapeake Monitoring Cooperative is a new initiative from the EPA's Chesapeake Bay Program (CBP) to incorporate non-traditional water quality monitoring data into Chesapeake Bay Watershed health assessments. This effort is the first time that the CBP has put resources towards incorporating these data into their network. The Cooperative's vision is a Chesapeake community where all data of known quality are used to inform watershed management and restoration efforts. The Cooperative's mission is to work with diverse partners to collect and share new and existing water quality data. We aim to develop a comprehensive understanding of Chesapeake Bay Watershed health.

Doing-it-Together Science: Amplifying & Cross-Pollinating Citizen & DIY Science in Europe

*Claudia Goebel - European Citizen Science Association*

Doing-it-Together Science (DITOs) implements many innovative participatory event formats across Europe focusing on the active involvement of citizens in two critical areas: the cutting edge topic of biodesign and the pressing area of environmental monitoring. The project advances the EU Responsible Research and Innovation agenda by moving beyond more traditional approaches into direct engagement that builds upon DIY, grassroots, and frugal innovation initiatives so that in the short and medium term we sustain localised capacity building and in the long term the effects of these grassroots efforts channel into policy action at different levels.

Habitat Network

*Megan Whatton - The Nature Conservancy*

The Nature Conservancy joins the Cornell Lab of Ornithology to create the Habitat Network, which builds upon a pre-existing citizen science platform, YardMap, by expanding the focus into the urban arena through work with established urban conservation programs to address environmental issues facing cities. Through local partners in Washington D.C., Philadelphia, and Boston we will field test the Habitat Network citizen-science platform to bridge the online and on-the-ground worlds where environmental issues arise and are dealt with through the actions and choices of community members to benefit both humans and wildlife.

Mark2Cure: Learn, Work, Help

*Max Nanis - The Scripps Research Institute*

At 26 million articles and growing, knowledge extraction from biomedical literature is an important big data problem. Mark2Cure trains citizen scientists to help tackle this problem in order to facilitate research on a rare disease known as NGLY1-deficiency. Learn about biomedical terms, biological processes, fascinating diseases, genes, and drugs from the same sources that scientists use—all while helping organize information relevant to a rare disease that makes children unable to shed tears when they cry. Training is provided via an online tutorial, and there is NO cost to participate. If you can READ, you can HELP.
Guardians of Chapada Monitoring Pollinators in Brazil
Blandina Viana - Biology Institute - Federal University of Bahia (UFBA)
“Guardiões da Chapada” (Guardians of Chapada), launched in 2015, is a new regional citizen science project. The main goals of the Project are monitoring, through photographic records, the flower visitors and associated flora, and raise public awareness about conservation of pollinators and pollination service through participatory methodologies. With a growing group of dozen active participants including local community, graduate and undergraduate students and tourists, a collaboratively, and publicly accessible, image database of floral visitors is under construction. We expect a comprehensive data set on plant-pollinators interaction to be built in order to support actions for biodiversity and ecosystem service conservation.

The Smartfin: How Citizen Scientist Surfers Could Help Inform Coastal Ocean Science and Conservation
Shannon Waters - Surfrider Foundation
The Smartfin is a surfboard fin with sensors that measure multiple ocean parameters like temperature, location, salinity, and pH (in development). The data surfers acquire while in the water will become accessible in near real-time to the world-wide scientific community. But Smartfin is not only about the data. It is also an effort to connect surfers and their communities to larger issues affecting ocean health. Using the data collected with Smartfin, we can better understand trends in ocean warming and acidification and mobilize our communities to take action to combat these problems caused by climate change.

ScienceCache: a Geocaching Framework for Repeated Observations
Tab Graves - U.S. Geological Survey, Northern Rocky Mountain Science Center
Imagine this: A family on vacation looks at the website for Glacier National Park and sees they can geocache for science. As they hike to the 'ScienceCache' they learn that spring temperatures are increasing, grizzly bears eat huckleberries to fatten them for their winter nap, and warmer springs may mean fewer berries. At the cache, they answer a few questions about the huckleberry shrub to help scientists predict the huckleberry crop. They learn that a scientist in Minnesota has 'ScienceCaches' for tree phenology on the trails they hike in Minnesota and decide to regularly seek them out.

Volunteers and drones combine to map invasive plant species along major rivers in Tokyo, Japan
Hiromi Kobori - Tokyo City University
Professional field surveys of invasive species are not enough to evaluate their spread, or to plan or assess management actions. We developed a citizen science project that provides two ways for volunteers to contribute. First, volunteers go out on foot and report observations of invasive species via a smartphone app. Volunteers immediately see their observations on maps and graphs. Second, we use drones to record video streams and photos of areas difficult to monitor on foot. Volunteers use free software identify invasive species on the videos and images, and then analyze changes in the distribution of target species.
**Floodcrowd: Sharing Observations of Floods to Help Research Their Causes and What We Can Do About Them**  
*Avinoam Baruch - Loughborough University*

Floodcrowd (floodcrowd.co.uk) is a web-based crowdsourcing platform which aims to improve our knowledge of flooding in the UK by asking those who have witnessed floods to share their knowledge. These records will be used as part of a PhD research project at Loughborough University. There is an urgent need for up-to-date, local information to build a more complete picture of flooding in the UK. The public can play a vital role in providing this information by sharing knowledge of: locations and impact of flooding events, flooding depths and extents, local knowledge of causes of flooding and flooding history.

**GLOBE Observers (GO) Mosquito**  
*Rebecca Boger - Brooklyn College*

GO (GLOBE Observers) offers a new citizen science app that allows people to collect information on mosquito breeding habitats and taxa. The GO app (available through Google Play and iTunes) has an easy interface that provides step-by-step instructions on the description of the habitat, and how to identify the mosquito larvae in Culex, Anopheles, and Aedes genera, and the Zika transmitting species, *Aedes aegypti* and *albopictus*. Data are publicly accessible to download by researchers, public health practitioners, and interested individuals. The project addresses a serious health issue by providing spatially and temporally intensive data that may not be collected otherwise.

**Biscayne Bay Drift Card Project (BayDrift)**  
*Chelle King - Patricia and Phillip Frost Museum of Science*

BayDrift was designed to discover the origin of trash that washes up on Miami’s coastline. Participants paint drift cards (small plywood cards) with designs, artwork, or poetry that serve as "messages in bottles." The cards are subsequently launched into Biscayne Bay and move with the currents of the Bay until they are found by volunteers at large cleanup events scheduled a few days to a week after the launch. The start and end points of the recovered cards are analyzed by scientist at CARTHE, in conjunction with GPS-equipped drifters that are launched concurrently with the cards from select sites.

**City Nature Challenge**  
*Alison Young - California Academy of Sciences*

Started in 2016 for the first-ever National Citizen Science Day, the City Nature Challenge was a bioblitz-style competition between Los Angeles and San Francisco, engaging residents and visitors in documenting nature to better understand our urban biodiversity. Over 20,000 observations were made by more than 1000 people in a one-week period, cataloging approximately 1600 species in each location, including new records for both areas. In 2017, the City Nature Challenge goes national, with cities around the country joining in the competition, and is going international in 2018. Come learn more and find out how your city can take part!
Monitoring Bird Windows Collision in South America: Common Challenges and Perspectives for CitSci Projects
Sandro Von Matter - Federal Rural University of Rio
The Brazilian National Program for Monitoring Bird Window Collisions, it is a citizen science project designed to track and monitor bird glass collisions in the country. In USA a recent study points that between 365 and 988 million birds are likely killed each year as a result of collisions, in Brazil could be expected at least the same number of birds death annually. Until now, with more than 5000 participants per year, results points that most of the collisions happens in buildings up to three meters high, until now the project could identify 112 collision hotspots.

Aurorasaurus
Elizabeth MacDonald - NASA Goddard Space Flight Center
Aurorasaurus is a citizen science project that gathers real-time data about aurora sightings and sends out notifications to users when the Northern and Southern Lights are likely visible in their area. Aurorasaurus significantly improves forecasting of the aurora using citizen science reports and crowdsourced (Twitter) ground truth observations of aurora. Registered users get location-based notifications, a real-time monitor of space weather activity, the capability to help verify tweets and search for real sightings, answers to science and aurora questions, and more.