

## Citizen Science Projects

Phelps County

### **CITIZEN SCIENCE PROJECTS FOR PHELPS COUNTY MASTER GARDENERS, as of July 2018**

Citizen Science is the collection of scientific data by individuals who are not professional scientists. Professional biologists from the land management agency prepare the individuals for their work as citizen scientists. These projects are on-going and consist of a network of volunteers. Citizen Science networks are very important. The citizen science monitoring programs would not be the success it is without the participation of citizen scientists. Without these dedicated volunteers, too few data would be collected to accomplish research objectives. Much of what has been learned about the monarch butterfly and its migration is the result of citizen science projects. In November 2013, the Extension Horticulturalist Specialist, Patrick Greenwald, approved several of the below listed programs as well as providing his approval for future similar Citizen Science programs as Volunteer Service for Phelps County Master Gardeners. Additionally, only 1.0-hour of on-line training can be used to meet the annual 6.0-hour Continuing Education requirement.



#### **1. CoCoRAHS: <http://www.cocorahs.org/>**

CoCoRaHS is a grassroots volunteer network of backyard weather observers of all ages and backgrounds working together to measure and map precipitation (rain, hail and snow) in their local communities. By using low-cost measurement tools, stressing training and education, and utilizing an interactive Web-site, our aim is to provide the highest quality data for natural resource, education and research applications. The only requirements to join are an enthusiasm for watching and reporting weather conditions and a desire to learn more about how weather can affect and impact our lives.

Our Web page provides the ability for our observers to see their observations mapped out in "real time", as well as providing a wealth of information for our data users.

#### **2. Monarch Larva Monitoring Project: <http://www.mlmp.org/>**



The Monarch Larva Monitoring Project (MLMP) is a citizen science project involving volunteers from across the United States and Canada in monarch research. It was developed by researchers at the University of Minnesota to collect long-term data on larval monarch populations and milkweed habitat. The overarching goal of the project is to better understand how and why monarch populations vary in time and space, with a focus on monarch distribution and abundance during the breeding season in North America.

As an MLMP volunteer, your contributions will aid in conserving monarchs and their threatened migratory phenomenon and advance our understanding of butterfly ecology in general.

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### 3. Great Sunflower Project: <http://www.greatsunflower.org>

Contribute to science and conservation: People all over the country are collecting data on pollinators in their yards, gardens, schools and parks. Together, we take counts of the number and types of pollinators visiting plants (especially sunflowers). We have been gathering information on pollinator service since 2008, and now have the largest single body of information about bee pollinator service in North America. Thanks to our thousands of observers, we can determine where pollinator service is strong or weak compared to averages.

Why It's Important: Over the past few years, scientific studies have suggested that both honey bee and native bee populations are in trouble. What we don't know is how this is affecting pollination of our gardens, crops and wild lands. In 2008, we started this project as a way to gather information about our urban, suburban and rural bee populations and to give you the tools to learn about what is happening with the pollinators in your yard.

How You Can Help: While we love to get data from our namesake species, Lemon Queen Sunflowers, you can participate by watching a plant and recording how many pollinators visit or recording pollinators as you take your favorite hike! Seeds can be purchased at your local store or through Renee's Garden who will donate 25% of her proceeds if you use the coupon code FR225A. Do join us! We would love to have you; let's help our most important pollinators together!

### 4. Nature's Notebook, <https://www.usanpn.org/naturesnotebook>, part of the USA



**National Phenology Network:** <https://www.usanpn.org/>

Phenology refers to key seasonal changes in plants and animals from year to year—such as flowering, emergence of insects and migration of birds—especially their timing and relationship with weather and climate. This is a national partnership with the University of Arizona, University of Wisconsin, Milwaukee, The Wildlife Society, National Park Service, National Oceanic and Atmospheric Administration, National Aeronautical and Space Administration, National Science Foundation, Oak Ridge National Laboratories, US Fish and Wildlife Service, and US Geological Service.

Observing nature is fun. But it also serves a greater purpose. Your observations of plants or animals inform scientific discovery and decision-making: Scientists use your data in groundbreaking research. Land managers use them to make better-informed decisions about natural resources in their care. Decision-makers use them to determine policy.

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### 5. Journey North, <http://www.learner.org/jnorth/>

Journey North is an Annenberg Lerner program. Journey North engages citizen scientists in a global study of wildlife migration and seasonal change. K-12 students share their own field observations with classmates across North America. They track the coming of spring through the migration patterns of monarch butterflies, robins, hummingbirds, whooping cranes, gray whales, bald eagles— and other birds and mammals; the budding of plants; changing sunlight; and other natural events. Find migration maps, images, standards-based lesson plans, activities and information to help students make local observations and fit them into a global context. Widely considered a best-practices model for education, Journey North is the nation's premiere citizen science project for children. **The general public is welcome to participate.**



### 6. Hummingbirds at Home, [http:// www.hummingbirdsathome.org](http://www.hummingbirdsathome.org)

To live such high energy lifestyles hummingbirds must sync their migration and nesting times with the flowering of nectar-bearing plants. Climate change threatens to throw off this delicate balance, with unknown repercussions for hummingbirds. We know that scientific research will be essential for helping us understand how climate change is affecting hummingbirds and for learning what we can do about it. But it's not that simple. Collecting the necessary scientific data across large areas is difficult and costly.

So how can we begin the research necessary to answer important questions related to hummingbirds and climate change? Team up with Audubon to help hummingbirds. There are three opportunities to participate: **Patch Survey-** Search your whole patch for hummingbirds, sources of nectar, and feeding events. A patch is any area you regularly survey for hummingbirds. **Single Sighting-** Tell us when you make an incidental observation of a hummingbird, source of nectar, or feeding event. Single sightings are not planned ahead of time and can occur at your patch or anywhere. **Nectar Watch-** Choose a single nectar source in your patch and log visits from hummingbirds. You will be able to track several species during each watch.



### 7. Monarch Joint Venture, <https://monarchjointventure.org/>

To understand the monarch migration, we rely on the help of citizen scientists to collect data during all phases of the annual life cycle of monarch breeding, migrating, and overwintering. While measuring and studying overwintering colonies may give us the best estimate of population size, it is important to gain insight into breeding population trends and factors influencing the migration within the US. Each phase of the monarch annual life cycle plays a role in the overall health and abundance of North American monarchs. To estimate the overwintering population in Mexico, staff members of the World Wildlife Fund-Mexico and Comisión Nacional de Áreas Naturales Protegidas (CONANP) measure the area within the Monarch Butterfly Biosphere Reserve that is occupied by monarch overwintering colonies. In

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the U.S., however, information about the status of breeding and migration is collected by citizen scientists. There are many ways to participate. Visit their Webpage to find out more.

8. **Missourians Doing Impact Research Together, <http://modirt.missouriepscor.org/>**



**MO DIRT, Missourians Doing Impact Research Together**, is a new state-wide project aimed at educating citizens on soil health and working with them to examine soils properties and how these properties are influenced by microclimate and climate in the state. The Missouri Transect project was established through a \$20 million National Science Foundation EPSCoR grant in 2014 ([www.missouriepscor.org](http://www.missouriepscor.org); award IIA-1355406). This project aims to study and predict the impact of climate change on agricultural productivity and natural habitats in Missouri, and how communities are likely to be affected by and respond to the challenges of a changing climate. The lead institution of this project is the University of Missouri-Columbia with the following partners: Donald Danforth Plant Science Center, Saint Louis Science Center, Saint Louis University, Lincoln University, Washington University, the University of Missouri at Kansas City and St. Louis, and the University of Missouri Science and Technology.

### **SPECIFIC GOALS**

- To educate citizens on soil science, soil-climate interactions and the soil-plant interface
  - To create public awareness of soil threats and conservation actions
  - To train citizens on data collection, analysis, and reporting of soil properties
  - To conduct soil surveys with particular emphasis on soil respiration and soil carbon
  - To maintain a web-based portal for MO DIRT participants
  - To contribute valuable data to scientists involved in Missouri Transect research
9. **There are many other Citizen Science programs not listed here. They are pre-approved as long as they pertain to sustainable horticulture related practices and environmental stewardship related topics. If a member finds additional Citizen Science Programs they are participating in, please inform the Chapter President so this list can be updated. Additionally, on-line training, can only count as 1.0-hour toward the 6.0-hour annual Continuing Education requirement. It will still count as Continuing Education but not for meeting the entire 6.0-hour requirement.**