

## to the *Natural Inquirer* Citizen Science Edition!

**H**ave you ever observed the arrival of a particular bird or butterfly species in spring? Have you noticed when or where a particular flower blooms? Did you know that your observations could be a part of a real scientific research project?

Projects that include people like you who collect and submit observations and information have a number of names. Most commonly, these projects are called citizen science. Other names for citizen science include crowd science, crowd-sourced science, citizen-based science, civic science, volunteer **monitoring**, and networked science. All of these names identify a scientific project that includes citizens—people like you—as a part of the information collection process.

Some citizen science projects involve a website. At the project's website, you learn how to properly make, record, and report your observations. Usually, the website also includes online forms so that you can submit your information electronically.

For some citizen science projects, you can track the collection of similar information from citizens and students nationwide and even worldwide. Throughout this journal, you will find out about many citizen science projects. You can learn more about each one on the website listed with each article.

In this *Natural Inquirer*, you will learn about the many benefits of citizen science, to both the scientist and the citizen scientist. You will learn about the kind of science that can be supported by observations you and your classmates make. You will learn, for example, how the observations of **spearfishers** and volunteers compare with the observations of **marine** scientists. You will learn how your own bird observations and observations of **invasive species** relate to similar science

being done by scientists. Have you ever felt an earthquake **tremor**? You will learn how people who feel earthquake tremors are contributing to a better understanding of earthquakes.

After reading this *Natural Inquirer*, you can become a citizen scientist too!



Photo courtesy of Aleksandra Pitt.



Photo courtesy of Aleksandra Pitt.

Glossary words are **bold** and are defined on page 7.

# Citizen Science For Life

Can you imagine observing, recording, and reporting the weather every single day? That is what Richard G. Hendrickson did—for 85 years! Beginning when he was 17 years old, Mr. Hendrickson observed and recorded the weather at 8 a.m. and 8 p.m. every day. He volunteered for the Cooperative Observer Program, which became the National Weather Service. The National Weather Service is a part of the National Oceanic and Atmospheric Administration (NOAA).



Photo courtesy of Dolores Morrison.



Photo courtesy of Dolores Morrison.

As time passed, other volunteer weather observers started to report the weather using computers. Mr. Hendrickson never did. Instead, he phoned in his weather reports twice a day. When Mr. Hendrickson died at the age of 103, he was the Nation's longest serving volunteer weather watcher.

In 2014, NOAA established the Richard G. Hendrickson Award. This award is presented to volunteers with 80 years of service. Mr. Hendrickson was the award's first recipient. Mr. Hendrickson's commitment to observing and

reporting the weather helped scientists and citizens across the country by providing timely, accurate weather data and helped chart the way for studying weather. You can be like Mr. Hendrickson! After reading this journal, select a topic and become a citizen scientist too!

This information is adapted from a *New York Times* article. To learn more and read the full article, visit <http://www.nytimes.com/2016/01/18/nyregion/richard-g-hendrickson-who-recorded-the-weather-for-85-years-dies-at-103.html>.

Check out the National Weather Service video about Mr. Hendrickson at <https://youtube/F2-e6WsCI2l>.



## Is Citizen Science New?

Before science emerged as a profession, citizen scientists conducted most of the scientific research. Over hundreds of years, **amateur** scientists and volunteers contributed to an understanding of climate, evolution, geology, electricity, astronomy, and other topics. Farmers, weather watchers, and **naturalists** documented the daily weather, the timing of harvests and insect outbreaks, and wildlife sightings and behavior. Three North American citizen scientists you may be familiar with are Benjamin Franklin, Benjamin Banneker, and Thomas Jefferson. Benjamin Banneker, who lived in the late 1700s, was an amateur astronomer and naturalist.

So, if you practice citizen science, you are following in the footsteps of people interested in carefully observing the natural world.



In 1980, the U.S. Postal Service honored Benjamin Banneker with a U.S. stamp. Photo by Babs McDonald and enhanced by Stephanie Pfeiffer.

## Glossary

**amateur** (a mə tər): A person who does something (such as a sport or hobby) for pleasure and not as a job.

**invasive species** (in vā siv spē shēz): Any plants, animals, or organisms that are not native to the ecosystem they are in, and are likely to cause harm to the environment, the economy, or human health.

**marine** (mə rēn): Of or relating to the sea or the plants and animals that live in the sea.

**monitor** (mä nə tər): To watch, observe, listen to, or check (something) for a special purpose over a period of time.

**naturalist** (nat u ral ist): A person who studies plants and animals as they live in nature.

**spearfisher** (spēr fi shər): A person who, while swimming below the water's surface, fishes using a spear.

**tremor** (trə mər): Something discharged or sent out.

Accented syllables are in **bold**. Marks and definitions are from <http://www.merriam-webster.com>. Definitions are limited to the word's meaning in the article.