Community Science

By Nancee Caye, BFG Member

Every time I go outside, I notice things and wonder: what is that? Does it have a name? What does it do and how does it fit in nature? I take many photos of what I see: insects, birds, plants, interesting cloud formations, and even rocks. What I do with those photos allows me to participate in community science. Community science is when the public voluntarily contributes to scientific research. While I'm not directly involved in a research project as a scientist, my photos and observations can help researchers worldwide carry out their research projects.

Because of social media and the ability to post to websites, anyone who adds their photos - along with optional location data and observations - contributes to a large database of information. With careful processing of this free data, research is moving forward in leaps and bounds. Historically, many scientific discoveries were driven by people who were not scientists by profession.

- Antonie Philips van Leeuwenhoek, a cloth merchant, developed special lenses to view the weave of cloth and went on to discover microorganisms.
- Charles Darwin was interested in science, but started his study of nature as a student, not a scientist.
- Fred and Nora Urquhart requested volunteers to tag monarch butterflies to follow their migration south, eventually leading to the formation of Monarch Watch.
- Rachel Carson, a trained botanist and author, became alarmed at the rising use of DDT and its impact on wildlife, leading her to advocate for conservation.

Here's a more recent example of how thousands of people used their social media apps to help researchers understand the migration of painted lady butterflies in California. In 2019, millions of painted lady butterflies migrated across California. This was one of the largest migrations of these butterflies since the 1960s, possibly triggered by heavier rains the

previous winter which caused a larger growth of vegetation. Because so many people were posting photos and location information on social media apps, the researchers were able to access and use that data to map the migration, see the condition of the butterflies, and garner so much more information on the species. The researchers were busy for quite a while analyzing what they learned to get a better understanding of painted lady butterflies and their habits, as well as surrounding habitat and vegetation information.

Finding solutions in research requires more eyes, ears, and perspectives than a single trained scientist can provide. Community science connects two critical elements to advance research. Scientists provide the instructions and protocols, and community members provide valuable observations.

It's important to remember that *"You are the expert of your surroundings. You are more likely than any professional scientist to know when something seems different."* (The Field Guide to Citizen Science, by Darlene Cavalier) Researchers recognize the importance of this awareness and derive information from our observations. Today, we can easily share our observations online and about diverse subjects. I personally use iNaturalist to post my photos of all the wildlife I see. iNaturalist uses crowdsourcing to produce research-grade data. These data sets of photos, locations, and diversity of species or conditions might all be used by different studies with different emphases.

When you create an account on the iNaturalist website, you can then take your time to learn how to better photograph species from others and learn about the species you are seeing yourself. You can join projects that interest you, like the Bee Friendly Gardening (BFG) Project. iNaturalist has various tutorials to guide you through creating an account, how to use your account features, how your information is used, and more.

Journey North, eBird, Bumblebee Watch, and many more organizations utilize Community Science. If you are interested in something specific, do some research to see which apps may benefit from your participation. This quote from the webinar *How Your iNaturalist Data Makes a Difference for Biodiversity* is so true: "No one can do everything, but everyone can do something for biodiversity." And it all starts with your interest and a photo.