# Conservation Needs Collective Knowledge: Why You Should Participate in Citizen Science.

What is Citizen Science?

Citizen science, or community science, refers to public participation in recording scientific data across large areas. It allows for much more information to be gathered than would be feasible by organizations or scientists alone. This concept is being used across the world through websites, phone apps, or in-person data sheets to collect information on wildlife.

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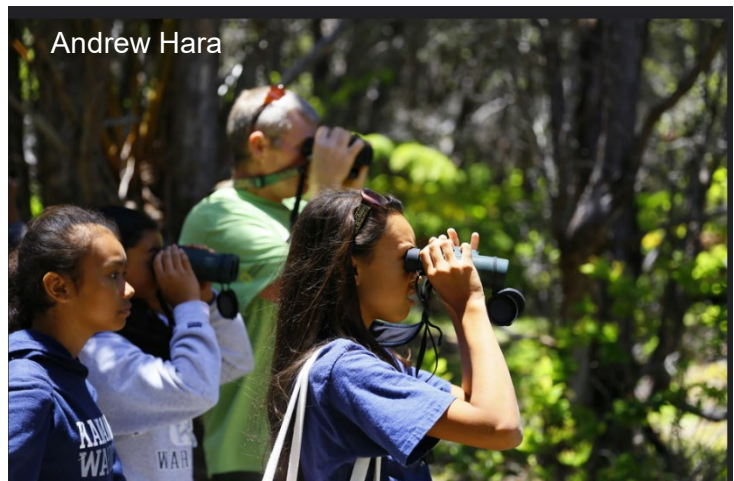
Online submission databases like eBird and iNaturalist are becoming increasingly popular, with users logging thousands of wildlife sightings every day. One of the oldest citizen science projects in the world is the Christmas Bird count organized by the Audubon Society. This annual birding event takes place in over 2,000 locations!

The bird count is so popular with so many participants around the world, and the data collected so extensive, that scientists can trends in bird populations over decades.

Bioblitzes are another forum for Citizen Science. Here communities of people head out to parks and nature reserves to help identify what species are present. They record sightings all together, on a given day or over a week.

So, if you have any identification skills and knowledge related to local plants and animals, you can contribute to the larger body of scientific knowledge and conservation! However, some Citizen Science projects provide people with training, and no prior experience is required.

The Significance of Citizen Science

Ecologists and other scientists can take samples in order to get an idea of the organisms that are in an area, or to monitor concentrations of nutrients and contaminants in soil and water. Taking these measurements gives scientists an idea of how natural systems are changing over time, and helps to identify problems and also solutions. However, collecting data can be very labour-intensive and expensive. Citizen science is a great way to gather data over a large area in a cost-effective manner. This information can then help groups, agencies and even governments effectively manage resources, influence policy decisions, help set conservation priorities, and reduce environmental impacts.

Gathering public support and participation in Citizen Science has been very effective in the birding community. Because many bird species migrate long distances, it can be hard to understand their distribution and movement patterns. Projects like Feeder Watch, iNaturalist, and Christmas Bird Counts harness the knowledge of thousands of people across continents to produce maps and trends. The value of Project Feeder Watch alone has been estimated at about $3 million per year.

But not all citizen science projects are equal. While public engagement is a great way to get people to care about the world around them, the data collected may or may not be useful.

Some issues that come up in relation to citizen science include: incorrect species identification, unequal search effort, and biased observations. For instance, volunteer birders are likely to report a sighting of a rare Cerulean Warbler or a Golden Eagle, but may overlook the number of American Crows or gulls they observed. Observations also tend to be higher near roads and properties, since these areas are easier to access. This biased reporting creates an inaccurate picture of species numbers in the landscape.

Biases can largely be avoided with good study design. Those who create projects should cater to the different levels of knowledge that the public may have, and ensure that participants are comfortable with the protocols. Some other tips that Citizen Science researchers suggested include:

- Properly train volunteers and provide feedback. This will improve data accuracy, but also help volunteers understand the importance of the work they're doing.
- Encourage submitters to include pictures. This allows for experts to confirm identifications. Most photos taken from smartphones are also "geo-tagged," meaning that the GPS coordinates, date, and time are automatically saved with the photo.
- Record search effort in each submission so you can adjust for sampling effort bias. This means that observers should record the amount of time they spent surveying and/ or the distance travelled during their surveys.
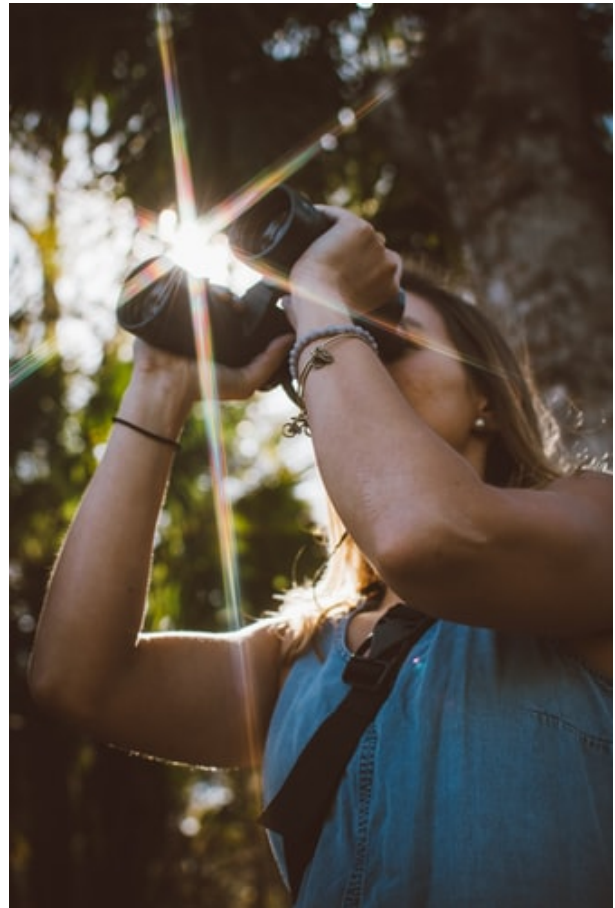
Opportunities: How you can get involved?

- If you are interested in birds, participate in The Backyard Bird Count from wherever you are. This takes place **February 14 to 17, 2020**.

- If you have a bird feeder in your yard, join Project Feeder Watch! Monitor birds in your free time and submit your results online. Join before **April 2, 2020**.

- This summer, participate in the annual dragonfly butterfly and dragonfly surveys in Minden. The Haliburton Highlands Odonate Count will be on **Sat. July 4** and the Butterfly Count is **Sat. July 11, 2020**.

- The Couchiching Conservancy has listed several opportunities to get involved in Citizen Science monitoring projects. They also host a Bird Blitz at the Carden Alvar.

- If you like watching flowering plants, you can submit your observations to Plant Watch.

- Help us record animal observations in The Land Between on our iNaturalist page. Or use eBird to easily report your own sightings to a collective database.

- You can submit online, or download their apps.Check out the Zooniverse forum to help on a wide array of science projects.

Stay tuned for upcoming projects in the Land Between! This spring and summer look out for: Turtle Road Patrols, Wetland Watchers, *Phragmites* removal teams, Snake Supervisors, and weekly bird walks. If you are enthusiastic about citizen science and want to help us organize events, let us know! We could especially use folks with good biological ID skills.

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