The Growing Roles of Citizen Science

Winifred B. Kessler
PROFESSIONAL MEMBER
Boone and Crockett Club

For those who think of scientists as a distinct class within the human race, the term "citizen scientist" may seem like an oxymoron. What is citizen science? According to Wikipedia, the term refers to a project or ongoing program of scientific work in which a network of volunteers, many of whom may have no specific scientific training, perform or manage research-related tasks such as observation, measurement, or computation. I would emphasize that to produce results of scientific merit, the volunteer component must be embedded in a structure designed and overseen by scientists. Such programs are yielding a wealth of information that would not be possible otherwise, given the limitations of research funding and personnel.

The concept of citizen science is not new. The oldest currently running project is probably the Christmas Bird Count (CBC), started by the Audubon Society in 1900. The purpose was to monitor the diversity, abundance, and distribution of early-winter birds across North America. An endeavor of this scale could not be realized without the willingness of vast numbers of citizens to spend one day per year counting birds according to the standardized CBC protocol. Today the birdlife of North America is being additionally explored by a variety of citizen-science projects, including: the Birdhouse Network; Birds in Forested Landscapes; the House Finch Disease Survey; Urban Bird Studies; and eBird, a year-round survey using state-of-the-Web technology to track birds across the continent.

Another citizen-science program, the Earthwatch Institute, was started to create a new funding model to support scientific research in the face of dwindling public sources. In this model, motivated citizens pay for the opportunity to participate in research projects that interest them. Earthwatch began in 1971 with four scientists from the Smithsonian Institute and 39 volunteers. Today, it is a diverse community of scientists, educators, students, conservation organizations, and corporate partners that engages 4,000 eager volunteers each year to assist scientists in research projects around the world.

What is citizen science? According to Wikipedia, the term refers to a project or ongoing program of scientific work in which a network of volunteers, many of whom may have no specific scientific training, perform or manage research-related tasks such as observation, measurement, or computation.

Other programs enlist the help of citizens to analyze data sets that are too large to be handled by scientific facilities alone. Best known of these is SETI@home, a program that distributes radio telescope data to personal computers all around the world so that ordinary citizens can assist scientists in the search for narrow-bandwidth radio signals that would be indicative of extra-terrestrial intelligent life.

In addition to the purposes already mentioned, citizen-science projects serve an important educational role in teaching citizens about science generally, and in encouraging in-depth learning in the chosen field of study. Many projects aim at youth for exactly these reasons, with the hope of stimulating an interest in science and lifelong learning. A good example is the Roadkill Project, started in 1992 as part of the National Science Foundation's EnvironNet program, aimed at enhancing the effectiveness of science teachers. Students in the participating schools collect information on dead animals observed along the roadway, and submit this information to an online database. Another great example is Project CAT (Cougars and Teaching), a unique collaborative project of the Washington Department of Fish and Wildlife, the Cle Elum/Roslyn School District, University of Washington, Central Washington University, and local residents. Located in an area where cougars and communities coexist, the project integrates citizen participation and the K-12 curriculum into a research project seeking to better understand the ecology of cougar populations including interactions with humans.

The purposes and programs may vary, but the trend is clear. Citizen science has come into its own in recent years and is filling a significant role in expanding the knowledge base about wildlife and other aspects of the natural world. ■