**Sparking Interest in Biology by Focusing on Conservation**

**ENVIRONMENTAL EDUCATION**

Sparking Interest in Biology by Focusing on Conservation

Nature-based lessons inspire students to become citizen scientists, tapping their interest in conservation to foster deep learning.

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MaFelipe / iStock (girl); geoffsp / iStock (elephants)

One year ago, the world was turned upside down by the Covid-19 pandemic, and schools quickly adapted. Many teachers, such as myself, converted to a teaching style that we were never taught to do, much less excel in. However, during this trying time I was able to discover and utilize new resources for student learning. [Zooniverse](https://www.zooniverse.org/), in particular, allowed my high school students to connect with conservation in the real world.

**INTRODUCE THE CONCEPT OF CITIZEN SCIENCE THROUGH CAMERA TRAPS**

Camera traps, or game cameras, are motion-activated cameras that photograph wildlife in order to collect information about the population, health, environment, and other needs of animals. Zooniverse focuses on people-powered research, where people of any age can become researchers by participating in different camera trap projects.

When my students examined the data from the camera traps, they became citizen scientists. Citizen science, sometimes known as community science, harnesses the collective efforts of the public to help collect data on a wide variety of topics and animal species. In addition to collecting data for science projects, citizen science engages and inspires community members to continue their efforts in science and conservation.

**FOCUS THE LESSON TO SUPPORT PRO-ENVIRONMENTAL ATTITUDES**

Students who participate in citizen science are more likely to take an interest in the biodiversity of their community and develop pro-environmental attitudes. Wildlife biologist Stephanie Schuttler found that [nature or science-based experiences](https://www.researchgate.net/publication/329659274_Citizen_Science_in_Schools_Students_Collect_Valuable_Mammal_Data_for_Science_Conservation_and_Community_Engagement) early in life have a long-lasting impact on students and their views of the natural world. When my students participated in the citizen science lesson I created, they became more engaged and excited, and felt their learning had true purpose.

The conservation-based lesson that I created focused on Snapshot Ruaha, which I found through the Zooniverse website. Snapshot Ruaha was created by the [Ruaha Carnivore Project](https://www.ruahacarnivoreproject.com/home/human-wildlife-conflict/) (RCP) in Tanzania, which focuses on reducing human-to-wildlife conflicts within Ruaha National Park. With the populations of many species decreasing because of human intervention, the data collected from the camera traps placed within the park are crucial in order to [track the movement](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0096261) of large carnivores. The cameras produce millions of images—far too many for the RCP team to process on their own—so the RCP team uses citizen scientists to help collect and process data from their camera traps. The data goes back to the RCP team, which creates visual maps for distribution to people living in the area.

**GENERATE QUESTIONS TO BUILD FOUNDATIONAL KNOWLEDGE**

Prior to interpreting the camera trap data, my students first completed a lesson that focused on the specific human-to-wildlife conflict that is currently happening in Ruaha National Park. To build foundational knowledge, I had my students read through the RCP website and answer teacher-created questions that focused on the problems that carnivores are causing for the local people, prior attempts to solve this issue, and why camera trap data is so important to this situation.

My students also answered higher depth-of-knowledge questions such as, “Once you have collected data from the camera traps, how would you use this information to educate the local villagers?” and “What are some possible solutions to improve or solve this human-to-wildlife conflict? Discuss all implications of your solution.”

The responses to these questions were well-thought-out, which showed me that the students genuinely put some time into thinking of their answers. The background information and questions were crucial in building the foundational knowledge that my students needed to understand why the growing human populations have caused conflicts, such as the one seen in Ruaha National Park, and how many environmental issues don’t have just one, easy solution.

**SIMPLE TASKS YIELD ABUNDANT ENGAGEMENT**

Last spring, all 51 of my biology students took part in this citizen science activity. Each student observed and identified at least 20 different photos from the Snapshot Ruaha Project website. As they scanned the pictures, they had to decide if there was an animal present and then identify the species using the classification tool from the website. Then, they took a screenshot of their photos and pasted them into a Google document.

After turning in their lesson questions, I made a brief slide show of some of the pictures that my students identified and shared it with all of my classes. The students loved seeing the animals that they and their classmates had identified. Overall, the students looked at and identified more than 1,020 pictures from the camera traps. The wide variety of animals found in the lesson led to a great discussion about the diversity of wildlife in Ruaha National Park.

It is common for students who are learning virtually to be quiet or unresponsive. With this activity, my students were gushing over the animals that they found. Many of them reviewed more than the 20-picture minimum because they enjoyed looking at the pictures so much. Some even got their families involved and looked for animals long after school hours were over. While the Snapshot Ruaha camera trap project has come to a conclusion, several other projects are still in progress on Zooniverse, such as animal migration, green bridge assessments, and predator-prey relationships.

School days did not look “normal” over the past year, but I saw that remote and virtual learning could still be engaging and informative with real-world conservation efforts that encouraged students to be citizen scientists. And that will work in the classroom as well.