OPRA Program Development Grant Final Report

Cave Ecology Program

Date Authorized: 8/10/2022 Amount Authorized: $I,550

Erie MetroParks
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December 19th, 2023

Summary of project objectives and participating agency

Erie MetroParks Programming Department used the OPRA Foundation Program Development Grant to create a cave ecology program. The cave ecology program can be used at Osborn MetroPark for cave or bat related public youth programs, and it has been added as a program on our curriculum for local schoolteachers to request. To successfully teach an interactive cave lesson in a classroom setting, we used the grant funds to purchase and fabricate a mobile artificial cave habitat fully stocked with the formations and animals discussed in the lesson.

Description of project activities and final timeline

Creation of the artificial cave was the most difficult aspect of completing this project. After purchasing the materials there was a long period of time dedicated to making the cave formations. We used a trial-and-error approach to determine the best methods for creating cave formations with spray foam. Using long cardboard tubes as the base, we slowly added layer after layer of spray foam letting each layer dry in between. The layers allowed us to shape the formations and gave a nice texture. When the foam layers were finished, we continued adding layers of different colored spray paints to cover the orange spray foam color. Once the cave formations were complete, we were able to put the remaining pieces together using Velcro,

tape, fishing line, and custom-made wooden platforms for the standing formations. Little details were added last using more spray paint and glow in the dark paint.

From the outside the cave looks like any other enclosed black event tent, but once inside you will find an array of cave animals, tracks, guano, formations, and even the sound of running water. After classes learn about cave safety and we've talked about what they think they might find in a cave, students are prepared to go exploring. In small groups students clean or take off their shoes, put on safety helmets, and turn on their headlamps. By staging fake bats, salamanders, raccoons, spiders, snakes, and other items high and low, students have a lot to find once exploring. Each group is given several minutes to wonder through the cave and complete an assigned task (the task is different depending on age group). The experience is truly immersive as the lights are turned off and children use their senses, imagination, and investigative skills to observe as much as they can about the artificial habitat.

After the cave is explored, lessons are continued with a deeper discussion about the habitat and cave dwelling animals. Several additional props are used in the lesson outside of the cave including a mummified bat, a bat skeleton, and other visual diagrams that help students learn about cave ecology. With younger students, the lesson concludes with a storybook about a little brown bat, and a craft. With older students, a video is played that goes more in depth about how real cave formations are made.

Evaluation of outcomes and impact

After receiving the grant in August 2022, we first introduced the cave project to our Jr. Naturalist summer campers in June 2023. The cave wasn't quite finished at this time, but we staged what we had completed and gave our Jr. Naturalists an interesting task. After we taught a lesson on bats and other night flyers, the campers (ages 12-15) were asked to work in teams to plan for how they would use the cave to help educate younger students. They loved being in the "teacher role" for this activity and they came up with creative ideas for us to use as we finished the cave.

The cave was finished and opened in October 2023. With two public programs and our first requested program all in October, the cave saw 65 students and a handful of adults in its first month. The teachers were impressed and the students were happy to have a hands-on exploratory activity to accompany the cave lesson. Their excitement was palpable! Our first several programs were received well, and teachers loved the opportunity to offer the students something they had never experienced before.

Description of subsequent plans

The cave is stored away for the winter months, but we plan to use this time to clean up the cave and get it ready for next year. We plan to add a boot brush at the entrance of the cave and create even more cave formations. We are anticipating schoolteachers' requests for the cave ecology program next spring and fall, and we intend to use the cave for public programs on International Bat Night in August, and during Bat Week in October. The pieces of the cave are sturdy and well-stored and should work well for our bat and cave programs for years to come.

Summary of expenses incurred

Items Purchased	**Vendor**	**Total Spent**
10x15 ft pop-up tent, white board sign, 10x20 brown tarp, stuffed bat, possum, and raccoon, misting fans, children's books, duffel bags, batteries, headlamps, toddler hard hats, plastic insects and cave critters, Velcro, glow in the dark paint, bat decorations	Amazon	$1,135
Adult and youth hard hats, spray paints, spray foam filler and spray foam applicator tool, wood dowels	Lowe's	$376
Plastic storage totes, fishing line, super glue	Walmart	$54