

Saguaro Surveys with City High

by Rebecca Patterson-Markowitz



On November 4, 12 students from City High School participated in a day of citizen science at Saguaro National Park. They were



Students with Ranger Chip Littlefield

met by park employees at the SNP education center for an introduction to the park and its history of Saguaro Surveys. The students were about to collect data contributing to the park's efforts to observe and track their namesake cacti. Through this monitoring they hope to learn more about how these fantastic Sonoran desert giants are responding to different threats to their health, including encroaching development around the park and climate change.

After the intro, students were split up into three groups, and were given clinometers, measuring tape and flags, data collection sheets, and a digital camera. Each student decided the role they wanted to serve in the research team, and then received instructions for their equipment. The forecast had hinted at rain, and as we followed the GPS signal to our plot it began to sprinkle, the clouds interrupting our signal. All but the most fashion conscious of the group put on the big yellow ponchos provided by the park as we waited for the GPS signal to return. Thankfully the signal came back and the ponchos were almost unnecessary for the rest of our outing!

Each group headed out with the goal of surveying 5 different cacti. The students collaboratively implemented the different steps it took to complete each survey. Martin would measure out 10 yards away from the base of the specimen. Then Payton from the 10 yard mark would calculate the height of the cactus, using the clinometer while Zavier documented the saguaro with the digital camera. Gaby would mark down all relevant information based on the survey sheet provided by SNP with some guidance from Tina, the ranger out with our group. We soon began observing that every saguaro had its own unique characteristics and a history that we could begin to deduce looking at its size, color, blemishes and arms. We measured cacti over 2 meters tall and some that were less than a meter,



Martin and Zavier measure from 10 meters

getting up close and personal to look for exposed roots, holes, scars, frost damage, and more.

After the students completed their work, the groups enjoyed lunch out by their plots. My group of students rested near a rocky hill, which they clambered up to get a better view of the landscape extending to the south. Our lunchtime musing was on the incredible shift in temporal perspective the different life forms in the park can bring. We thought about the range from the life span of one of the flies investigating our lunches, to our human lives, to the saguaro's 250 some years, to the rocks beneath us and the seeming eternity of geologic time.

A similar theme on perspective emerged later in reflecting about the importance of the park. Payton, who was in charge of the clinometer during the survey was also carefully studying the landscape beneath his feet. He wrote, "*You should care about Saguaro National Park because of the life that it has. If you look from a far away distance you will be able to see so much diversity. If you scaled down and looked at just one square foot of the land you would be able to identify the same diversity. It's like how there is an infinite number of numbers between 0 and 1 and the same infinite amount of numbers between 1 and 100.*"

As the day drew to a close we circled up with Ranger Chip for reflection and feedback. The City High group was the first to participate in this citizen science initiative at SNP, and the park welcomed their thoughts and opinions. Most of the students remarked that while they enjoyed the citizen science, the best part of the outing was simply the opportunity to be outside in such a beautiful setting. As we sat or stood in our closing circle in the wash, all hands and feet were pushing or sculpting the sand beneath us. Ranger Chip observed that sometimes the most immediate ways to find a sense of place is through almost instinctual visceral and tactile engagement with the landscape. This kind of hands on connection is exactly what the students experienced today.



Students gather in the wash for a final reflection.

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