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Nature, uninterrupted:

West Hawaii students examine various ecosystems

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Approximately 50 students attend the Hawaii Island Outdoor Experience for Students conference held at the NELHA Conference Room on Tuesday. - Brad Ballesteros | Special To West Hawaii Today

Sofia Boucher's poem about Puu O Umi flawlessly captures the essence of nature thick with possibilities to wonder about, investigate, explore, discover and express.

"I heard the birds weave patterns to their song. I touched the fern curl about to open. I tasted the moist air on my tongue. I smelled the newness of it all," Boucher, 12, wrote after her field trip to the reserve covering the west upper slopes and summits of the Kohala Mountains down to dry coastal sea cliffs. "I saw life spring up around me. I wondered if this is the way it was meant to be."

The Hawaii Preparatory Academy seventh grader and her peers explored Puu O Umi, as well as Waiakamali Gulch and Koaia Reserve, uninterrupted. They felt the textures of their surroundings and searched for scientific revelations while determining whether the characteristics of soil, insect diversity and plant abundance differed at these sites.

They were among the nearly 400 students who studied various ecosystems in Kohala and Kona throughout the school year as a part of the Hawaii Island Meaningful Outdoor Experiences for Students, a program funded by the National Oceanic and Atmospheric Administration's Bay Watershed Education and Training. Ten participating West Hawaii middle and high schools presented their findings during Tuesday's scientific conference at the Natural Energy Laboratory of Hawaii Authority Gateway Center. The projects will be put on the Kohala Center's website, and numerous students said they hope their findings create further awareness and respect for the diversity or issues affecting the local environment.

Twice every quarter for the past three years, West Hawaii Explorations Academy high school students monitor area tide pools: two at Keahole Point, one at Kahaluu and one in the marine life conservation district at Old Kona Airport. They collect data on the species present and water quality at each site, then determine which tide pool was the healthiest. They were surprised to learn fish were the most common organism in most of the tide pools, not urchins, which they had hypothesized because sheltered areas are their preferred habitat. While the Kahaluu tide pool had a large quantity of organisms, including more than 3,000 mussels, the Old Kona Airport tide pool had the greatest variety of species and was deemed the healthiest, said 15-year-old freshman Ian Snyder.

Hualalai Academy students compared Kahaluu Bay and Kukio Bay to determine if the nutrient levels found in the water reflected human development along the shoreline. They also investigated if algal cover changes by location and nutrient levels.

They found significantly more hard rock with some type of cover at Kukio, while Kahaluu had more sand and bare hard rock. Though there was a difference in the types of cover at the bays, the students don't believe it's associated with nearshore development. Their water chemistry data was inconclusive because the measuring instruments were not sensitive enough to detect existing concentrations or very little nitrates and phosphates are in the water, said 17-year-old junior Olivia LeCoque, who plans to study biology in college.

Innovations Public Charter School sixth-grader Olivia Crowl said the project she completed with her peers on moss reawakened her sense of wonder. Not only did the 12-year-old learn that a sponge held more water, 31 grams to be exact, compared to three types of moss, Crowl began using scientific investigation and thinking around her Kaloko home. There Crowl discovered for the first time she had been "living in the heart of moss central and it was very cool." She added, "There's so many questions out there that still need to be answered."

The Kohala Center and Kohala Watershed Partnership assisted the participating schools with their project choices, site selection, field trip logistics, as well as organizing presentations by scientists and cultural practitioners.

For some teachers, this was the first time they had taken their students on a field trip. A lot of time, energy and organization were put in these projects, despite several schools having less days because of furlough Fridays, said Samantha Birch, Kohala Center's field educator.

"The best part was seeing the students do real science -- research projects people don't normally see from students until graduate

school," said Melora Purell, Kohala Watershed Partnership coordinator. "They really owned the science. They became real naturalists and experts."