

3 Year Anniversary Issue

The 28 Percent

Women make up only 28% of the STEM workforce. This newsletter aims to change that.

By Imani, 12th grade



November 2023

Table of Contents

- 01 Winter Festival Details
- 02 College Scholarships for Women in STEM by the JMHS crew
- 04 Seek, The Nature Identification App
- 06 Endangered Species Spotlight: Pangolin
- 08 Inspiring Girls Expedition Experience PT 2

THE 28 PERCENT

❄️ ❄️ ❄️

2ND ANNUAL

winter festival

RAFFLES, FOOD, CRAFT FAIR
& LIVE MUSIC BY PHS ORCHESTRA & STUDENT BANDS

9 DEC 2023 | 5 00 PM | FREE ENTRY

LEVITT PAVILLION, MEMORIAL PARK
85 E HOLLY ST, PASADENA, CA 91103



Introducing Seek, the nature identification app

written by Paulina McConnell

As mobile technology advances to bolster the practicality, ease, and capability of its targeted functions, its many instruments may lend themselves to the world of nature enthusiasts. For a long time, naturalists and citizen scientists relied on tiny, regional pocketbooks and years of cultivated knowledge to identify the species around them. However, with increasingly popular and powerful nature identification apps - many of which are mobile - the process has become far more accessible to the general public. One of such is Seek, a fairly new shootoff of the classic nature geek's social media, iNaturalist. The beginner-friendly software, made in partnership with National Geographic and California Academy of Sciences, is available in the App Store and Google Play for free purchase.

Like its parent app, Seek helps users identify over 20,000 species by photograph. It accomplishes this feat using the powerful tool of image recognition, the very same which social media companies employ to fill your feed with relevant content.

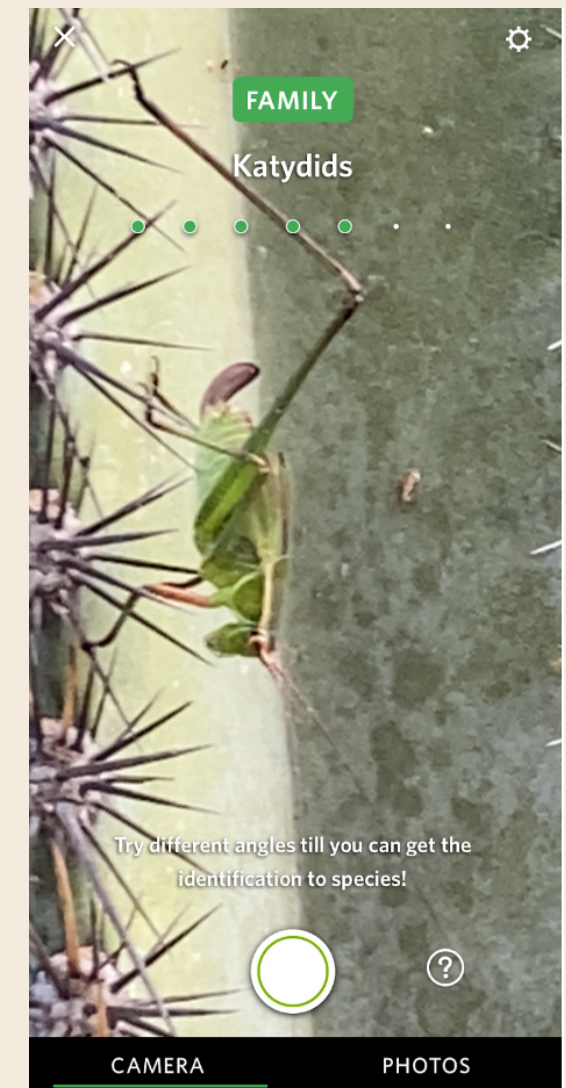
I have been an avid beneficiary of Seek's services for the last few months, opening the app at least once a day to snap a shot of some unknown insect or plant and hopefully sort out what it is. Just in my backyard, I've been able to observe native species, such as the Ten-lined June Beetle and Deerweed, as well as introduced species, like the Mediterranean Katydid.

Seek has a user-friendly interface that is very simple to navigate and operate. Moreover, it doesn't require the user to have any previous experience in the nature identification field;



however, those who use the app will likely accumulate knowledge about every species that they identify. In this sense, the app is encouraging and training budding naturalists.

How does the app work? As pictured on the right, it has a camera feature that you can open and hold up to your "U.F.O." (naturalist lingo for unidentified foreign organism). The app will then identify the organism down to the most accurate order that it can, more often than not pinpointing the exact species that you're seeing in a matter of seconds. Then, you'll see a page with information about the species' range, status, and seasonal abundance. You can keep your observations for yourself or choose to upload them to iNaturalist, where they'll contribute to crucial research and be visible to the general public.



Though Seek's identification technology works exceptionally for live identifications, it is often less useful when it comes to photos that have already been taken. If these photos are at all blurry or at a strange angle, the app sometimes fails to identify the organism. Seek is also somewhat limited in the quantity of information on each species, providing no more than a paragraph per. If you're someone who craves an in-depth understanding of the species you've observed, you will likely have to follow up your identification with an internet search to learn more.

Overall, I would highly recommend this app to anybody remotely interested in learning more about the world around them or looking to contribute to citizen science. In a pinch, it helps you know what you're looking at, and in the long run, it acts as a gateway to naturalism for kids, beginners, or otherwise. To me, it's truly eye-opening to know that you're sharing the earth with so many other unique creatures. Learning about them - where they live, how they live, or their role in the ecosystem - is a humanizing and gracious experience.

Endangered Species Spotlight: Pangolin

written by Kaley Simkins

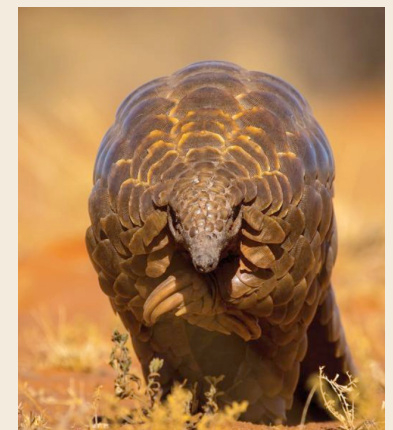
There's a pretty good chance that you've never learned about pangolins or even know what they are, so it may very well be a shock to hear that they are the most poached and illegally traded mammal in the entire world. Found in Asia and Africa, these primarily nocturnal animals share similarities with species you've most definitely heard of, like anteaters and armadillos. They have long snouts and big claws that help them dig into the ground to eat ants, termites, and larvae. They lack teeth but have long tongues, and they produce mucus from large salivary glands to ensure bugs will stick. Additionally, they have the ability to constrict their ears and nostrils while digging to prevent their dinner from crawling inside and have a muscular stomach adapted for grinding food. They have large, firm scales that cover their entire body and makeup 20% of their weight. When threatened, they'll roll into a ball for self-defense and expose their sharp scales to potential predators, as well as emit an unpleasant odor from their glands. The pangolin is a solitary mammal and will only be around others when mating or raising their young, who will go off on their own after a few months of relying on their mother. It is hard to know for certain how many of these scaled critters are left in the wild because of rampant illegal trade, but researchers estimate there are about 10,000.

According to recent data, over one million pangolins were poached over a ten-year period for their meat, scales, and skin.

Predominantly in China, pangolin meat is considered a delicacy and their scales are used for luxury items as well as medical remedies that treat a myriad of conditions including arthritis, rheumatism, and menstrual pain - all of which have been scientifically proven false. In America, there is a high demand for leather products like boots, bags, and belts that use pangolin skin.



As the pangolin rate of extinction grows higher every year, so does the effort to protect the species. The World Wildlife Fund, which raised over \$433 million for a multitude of endangered species last year, is partnering with TRAFFIC, a wildlife trade monitoring network, to protect pangolins from wildlife crimes, help governments mount strong defenses against poaching, and reduce the demands for illegal wildlife products in Asia and Africa. A similar organization, the American Wildlife Fund, is making efforts to bring awareness to illegal trade with campaigns featuring celebrities like Jackie Chan and Yao Ming. This work aims to educate the consumers of wildlife products about the damages of pangolin poaching and the truth about medicinal products. Through their Canines for Conservation program, they have deployed trained sniffer dogs to active wildlife tracking hubs like seaports and airports to intercept illegal trades across the continent. Lastly, AWF works with communities near vulnerable species to provide them with tools and incentives for sustainable agriculture that can wane them away from hunting endangered animals.



My Experience on an Inspiring Girls* Expedition Part 2 Jakalof

written by Morgan Gaskell

Jakalof was a small beach surrounded by Sitka Spruce and snow-capped mountains. Dune grass and cow parsnip grew from the ground while lichens hung from the branches of trees. Small islands surrounded the beach, some of which became accessible by foot when the tide was low enough. We unloaded the kayaks and then carried them to the bed of dune grass where they would stay for the night. After setting up our first campsite in the backcountry, we had a lesson on foraging and being mindful of what we were taking from the land. We collected dandelions and spruce tips for tea, only taking what we needed and thanking the plant after for providing us with a part of itself. The tea had an amazing flavor and warmed our bodies as it began to rain.

The rain eventually stopped, but the clouds continued to loom above us. We ate dinner and enjoyed Oreos for dessert. My role of the day was kitchen clean, which meant that in addition to cleaning my own dishes from our meal, I also washed the pots and utensils that we used to prepare it. Being in the backcountry now, we washed our dishes in the ocean and used rocks or seaweed to scrub away any food particles that remained. No running water, no soap, no towels! This was being in the backcountry away from civilization. After dish duty, it was already around 8pm but being in Alaska during the summer, the sun never really sets and something like darkness only comes around 1am. The group and I went off to explore! I had only known these people for three days, yet we already felt so close. Between discussions, bonding, and laughter, we sampled the blades and stipes of bull kelp, watched bald eagles fly between spruce, and flipped over rocks to find crabs, mussels, and eel-like fish called gunnels.



The next day, we woke up early so that we had sufficient time to make breakfast, pack up camp, suit up, and start our paddle at low tide so that the current would be in our favor as we left Jakalof and paddled to the next bay over. But we would soon reach our first and probably biggest challenge of the entire expedition: death mud.

With six people on each side of the kayak, we started carrying the boats down to the tideline which was at least 250 feet away from us. The tide was now on the tail end of going out and the start of high tide would arrive in about an hour, not exactly ideal.

"My shoes are getting stuck in the mud!" she continued as she tried to pull her leg, now past ankle deep, out of the mud. We looked down to realize that we were all slowly sinking. "Keep going! Come on team, we got this!" The motivation was great, but the mud was unforgiving. We had to turn back and find another way to get these kayaks to the water. "There's a shallow channel of water over there that's draining into the ocean! Maybe we can use that to push the kayak downstream?" It was worth a try, but the channel wasn't quite deep enough to ensure that the kayakers wouldn't get damaged by rocks. We brought the kayak up the beach and re-strategized.

About halfway down the beach now, the other half of the group who were lifting another kayak to the water had stopped and were struggling to get out of the mud too. Both hysterically laughing and utterly horrified, we watched the five minute battle with the quicksand-like sediment. Everyone had been able to free themselves except for one person: Maya. Now knee-deep in mud, we watched as Emily (one of our instructors) tried to pull Maya out. It wasn't enough. Another instructor, Laura, quickly yet carefully arrived at the scene. Together, they practically air-lifted Maya out of the mud to free her. We all cheered, but had to quickly get back to work moving the kayakers.

Between lifting heavy kayakers and getting swallowed by death mud, everyone was now pretty tired out, but we had to keep going if we wanted to beat the tide. Crossing the death mud was not an option, so we decided the only way was to carry the kayakers around the beach at a small incline over rocks and barnacles. We now had ten people on one kayak, with two people cheering on and motivating the ones lifting the boat. In order to not strain our arms and backs, we rotated positions every time someone got tired or subbed in one of the motivators. Seven kayakers later, all of the boats were now lined up at the tideline. We were sore, but very impressed with ourselves and each other. Now came the 5 mile paddle to Arch Beach.



Credits & Contacts

Pasadena High School Team

Paulina Mcconnell
Daniella Novo
Adeline Peterson
Alissa Santana
Maxine Scott
Mallika Sheshadri
Kaley Simkins
Patil Tajerian
Marley Thach
Maliha Syeed-Miller

Celeste Acosta
Jadyn Addicott
Avery Aldoroty
Cecelia Bichette
Jaidyn Carroll
Violet Chandler
Ruby Chew
Morgan Gaskell
Gianna Gullon
Emma Thatcher
Ms. Orret, Advisor

Chloe Vuong
Tracey Willard
Hudson Zortman
Makenna Morrissey
Emma Hungerford
Madeleine Lees
Cam Leyva
Olivia Lopez
Elena Hatcher
Margaret Matthews

John Muir High School Team

Ariana Soto

Cara Martinez

Imani Duran

Ms. Beverly, Advisor

Check out our website:

www.the28percent.com

Follow the PHS and JMHS teams!



@28_percent



@jmhs.girlsbuild

