happy new year!

The 28 Percent

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

ISSUE XXI // January 2023



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DR. DAWN WRIGHT VIRTUAL TALK & Q& A

In 1991 Dawn became the first Black female to dive to the deep ocean floor in a research submersible (2500 m to the crest of the East Pacific Rise), and in 2022 became the first Black person to dive the very deepest part of the entire world ocean (10,919 m to Challenger Deep). And in 2023, she is coming to PHS!

Dr. Dawn Wright will be speaking virtually on her work and studies in the field of oceanography, her diving adventures, and experience as a black woman in STEM.





The event will be held on Zoom Wednesday January 11th from 1 to 2PM. You can request to attend the event in the PHS auditorium or join the Zoom link on your own. **Email Ms. Orret at orret.deborah@pusd.us for more information!**

An Interview with Ornithologist Dr. Young Ha Suh

By Morgan Gaskell

I recently got the pleasure of meeting Dr. Young Ha Suh when she came and visited the bird banding station that I intern at in December. Young, a recent PhD graduate for her study in the behavioral ecology of Florida Scrub-Jays at Cornell University, was recently
hired as the new ornithology collections manager at the Natural History Museum of Los Angeles (NHM). You can learn more about Young at her website younghasuh.com.

I emailed Young questions about her experiences as a woman of color in STEM and what her new role at the natural history museum means to her as she works to make scientific knowledge more accessible to the public. Below is the interview. Some parts
have been lightly edited for flow and brevity.

What inspired you to pursue a PhD and career in science?
I was always interested in the natural world and wildlife but didn't know I could study it as a career until I got to undergrad. I couldn't believe that I could get paid to do fieldwork and study animals in their natural habitat. Once I got to college, I plunged into a lot of
different internships and projects. After trial and error, I realized I loved working on long-term projects that had a lot of demographic data for me to study population-level trends and individual behavioral responses. I did a senior thesis on population trends in Wood Ducks across northern California and fell in love with studying variation in life history traits. After graduation, I took a gap year working as a field assistant in the Kalahari Desert [in Southern Africa], collecting data on meerkats to gain more field skills. I soon realized that I wanted to be the one asking research questions. Based on the insight I gained on what to and not to do when conducting field research, I applied for grad school and the rest is history.

What kind of inequities and disparities towards marginalized groups did you notice in college while pursuing a PhD in STEM?



Dr. Young Ha Suh

For one, in my department, there were more male professors than female but there were more female than male graduate students. This could have resulted from gender-biases in attrition, but it could also signify a generational change as older folks retire and open up positions. But this gender ratio only shows part of the story; service roles (i.e., mentoring, IDEA work [Inclusion, Diversity, Equity, Access], administration) are often done by female faculty and graduate students, which is good in itself but takes time away from research or other metrics that are considered in hiring or tenure decisions (see articles like this, this, or this). Female graduate teaching assistants often get harsher reviews than their male counterparts which can have damaging consequences downstream. These disparities become more apparent when it comes to historically excluded demographic groups in terms of sexual identity and orientation, ethnicity, disabilities, and so forth. There were times when me or my friends experienced microaggressions and had to consult our peers to make sure we weren't overreacting or being too "emotional" about it. So it can be hard to simply do good science when there are a lot of systematic barriers in the way! But at the same time, I met some wonderful friends and mentors who understood and also experienced these disparities, and made me feel like I still belonged in the community. And there have been many efforts to
reduce this gender gap—acknowledging its existence has been the first step.

What projects did you work on before becoming the ornithology collections manager at NHM?

For my dissertation, I studied individual variation in movement of Florida Scrub-Jays at one of the longest demographic studies in North America. Florida Scrub-Jays are cooperatively breeding birds, meaning that more than the breeding pair attend to a nest and raise the young with usually the young delaying dispersal and staying at home for 1-6 years. I wanted to understand why some offspring stay for such extended periods since they don't produce any of their own young and it would be beneficial for them to leave and start their own family. So I wanted to know: Are there certain social or environmental factors that cause some birds to adopt different strategies? When doing fieldwork, I also noticed that there were a number of instances where the young would leave their own family and help out another—what's up with that? Despite being studied for over 50 years, Florida Scrub-Jays still seemed to have mysteries waiting to be answered. With technological advances, I was able to ask questions that were not answerable before—I deployed small locator tags to get fine-scale movement patterns of young birds to see how they utilized their landscape and possibly gain information on their "next step in life". It was a lot of work, but I had a great time spending half my year in Florida avoiding the cold winters of upstate New York. When I was on campus, I worked as a teaching assistant for various courses from introductory ecology and evolution classes to higher level taxonomy and graduate classes. I also taught a writing class for freshmen on conservation biology which was extremely fulfilling to design and teach.

What inspired you to take up a position at a natural history museum?

Natural history museums have been one of the main reasons how I got interested in the natural world to begin with. I loved walking through hallways with high ceilings and looking at animals in glass cabinets up close because how else was I going to be that close to a wild animal? I just had no idea there was so much more beyond the taxidermy mounts on display until I got to grad school. As a late stage PhD student, I was at a crossroads on what I wanted to do next. As much as I loved research, I disliked the disconnect between academic findings and public knowledge. Sure, there are more popular science articles that make it to the non-academic reader, but those were often limited and I wanted to do projects that were more accessible to those outside of academia. I realized that I enjoyed teaching, but dreaded grading. I loved sharing my knowledge outside the classroom—whether it be with fellow grad students, my own students, or visitors to my field station.

I loved fieldwork, but I was ready to settle down and own a dog (which is impossible when you're spending half the year at a remote site). I saw the position [at NHM] being advertised by chance and the description was everything I wanted in my next career stage: working with museum specimens, public outreach and education, community science work, and living in a diverse city.

Fortunately, I had been doing specimen preparation (i.e. stuffing birds) every week at the Cornell Museum of Vertebrates and had fallen in love with specimen prep as a medium for art and science. I had also done some collection work as part of my fellowship when I started my fieldwork in Florida, so I had some experience on collection management. My decision solidified when during my in-person interview I was
welcomed by a young and supportive all-women team; a stark contrast from my close-to-retirement White male committee. Even after six months of working at the museum, I still get excited when I walk into work and see dueling dinosaurs and walk by glass cabinets. It's the best.

Any message for girls/women hoping to pursue a career in STEM?

Like many professional fields, STEM has its own challenges and struggles, but it is also incredibly rewarding and fun. I got paid to chase birds in the scrub, how cool is that? There will be tough times but always remember that you DO belong here! Find good mentors and friends who will support you by your side and don't be afraid to ask difficult questions. You'd be surprised how many of us share similar struggles and how you're not alone in this field. Imposter syndrome is real, so be kind to each other but especially yourself.



Kate Movius – "Come As You Are"

By Tracey Willard

Kate Movius grabbed my attention due to her razor sharp focus and wit to bring a holistic vitality through academia, technology, creativity and community to the life of her son, Aiden, who is 22 years old non-verbal on the autism spectrum. Kate and her husband are the parents of two sons, Aiden as well as James, a wonderful senior in high school. If I could paint a memory of my impression of Kate, it would be the actual times when working with her family for a brief period awhile back, on sunny days I would sit on top of a small mountain in the neighborhood where they live with a much younger James looking out into a portion of the Los Angeles basin; the image so vast and clear.

You introduced me to the Short/Mark family, who are the subjects of illuminating documentary "BEYOND" which "follows Tamara Mark, a once rising Broadway and Hollywood star, to a full-time single mother of two nonverbal autistic adults, fighting for her dream to build a community for those alike to live a better and safer life."–
D. Ellen Miller Productions

I was wondering if you had any involvement in the birth and blossoming of this film project?

Tamara is a dear friend and a daily inspiration to me. We've known each other for many years. I wasn't involved in "BEYOND" but did appear in "Where is Nancy?" – another film by the same director, the gifted documentarian Thiago Dadalt. For anyone interested in gaining a deeper understanding of severe autism, which is rarely – if ever – profiled in popular culture, "BEYOND" is a must-see.



My inspiration for wanting to share aspects of your journey is from almost 20 years of knowing you. I've observed how you seem to "zero" in on a need; then to create a structure to support the fulfillment of the answer to what is being asked.

What was your "wish upon a star" before you became a mother to Aiden and James, as well as a wife?

I was mostly involved in the performing arts – singing, playing music and acting. But true purpose didn't enter my life until Aiden's birth and subsequent autism diagnosis.

Can you provide a brief statement on your journey with Aiden regarding language development, and the value of the ability to communicate? Can you touch on the progress and any hopes you might have for the future?

At the very least, communication is how we get our needs met. If we're hungry, we ask for food. If we're frightened, we seek comfort. If we're in pain, we tell someone where it hurts. Now imagine if you couldn't communicate any of these needs? What would you do? How would you survive, much less thrive?

There's a saying in the autism community – "behavior is communication" – that I return to all the time while parenting my son Aiden, 22. Because he can't rely on spoken communication to to get his needs met, he will often resort to actions which may seem odd or alarming. For example, jumping up and down, making loud sounds or banging his hands against hard surfaces. When he engages in these behaviors, I know that he's either frustrated or hurting somewhere – he's not just "acting out," he's communicating in the only way he can at that moment. So, the more options he has for expressing himself to others, the better he feels and the more he can connect with his peers and the larger community.

Aiden is a great reader and typist, which helps him tell us his preferences and needs. But if he's having a moment where he's too disregulated to type, I'll write choices for him on index cards or a piece of paper – eg., GO FOR A WALK or STAY HOME. The point is to give him as as much agency as possible to make his own choices and get his needs met. Having a Smartphone and/or iPad is very helpful for typing but you can keep it simple with pen and paper or if your autistic loved one doesn't read, you can provide picture options.

I'm very hopeful for the future of the autism community. We've made huge progress in communication tools for every part of the autism spectrum, whether someone is highly verbal or non-verbal. The key is to have as many options as possible because day-to-day, an autistic person might vary wildly in his or her ability to communicate.

I would appreciate if you could share a little with our readers about your work with first responders and "Autism Interaction Solutions"-Autism Communication Training for L.A. County.

Several years ago, I developed a program for training first responders how to interact with autistic people. By that time, Aiden had eloped (gone missing) at at least three times, resulting in encounters with the LAPD. Many people with autism will wander - or in Aiden's case, sprint - away from caregivers. I realized this pattern was kind of a ticking time bomb for Aiden; with each incident, the risk of injury or escalation with a first responder was rising. I mostly train law enforcement personnel but have also worked with transit, parks and recreation. My goal is to provide effective tools that can be used in a wide range of situations with people who are having a communication and/or behavioral breakdown.

The most important piece of my training - and the most effective, by far - is the inclusion of autistic co-trainers. I work with anywhere from 3 to 5 families at a time who have autistic family members, ranging from highly verbal and comfortable in front of a room full of people, to be completely nonverbal. We don't often know how the autistic person will be feeling at the time of the training and so there might be behaviors or scenes that arise which perfectly illustrate for these officers the material we've been covering.

What I see in that room week after week is a kind of evolution: officers start out with little-to-no knowledge of developmental disabilities and two hours later, their perspective has shifted in a fundamental way. They are not only better equipped to manage a variety of situations, but they make a real and lasting connection with their autistic participants. The bottom line is these officers want things to end well. They want to be equipped to de-escalate these situations. Meeting autistic people deepens that commitment.

Another part of my work is serving on the LA Found Taskforce, which works to prevent and address wandering for those with Alzheimer's, autism and dementia. One of the outcomes has been providing Project Lifesaver wristbands at no charge to families (https://lafound.lacounty.gov/).

Do you see ways the creative and academic community can support inclusiveness, quality of life for persons with autism and their families?

Autism is such a diverse condition and the supports needed vary widely based on the individual's needs. My efforts are focused on adults with moderate-to-severe autism. Special education programming ends at the age of 22 for this population (our community calls it "The Cliff" because students are left with little to no services after a lifetime's worth of support). My ultimate goal is to build a day program for Aiden and his peers, which encompasses recreational and employment training activities. Our first class – art-making with friends- has been a great success. We are lucky to have found an appropriate location at low cost, so we can develop the program.

Endangered Species Spotlight: The Grey-headed Albatross

By Kaley Simkins

The Grey-headed Albatross has been stated by Guinness World Records to likely be the world's fastest horizontal flier. They can fly at speeds of up to 127 kilometers per hour with a wingspan of 2.2 meters! These solitary seabirds spend most of their life at sea, distributed on different islands across the Southern Ocean, and can circumnavigate the globe in a little over a month. Once the female lays an egg both parents will incubate the egg, although the majority of the time the male is the one on the job. Once hatched, the chick will be nurtured for about four and a half months, then spend the next six to seven years at sea. These Grey-headed Albatrosses live for about 30-35 years. Both males and females will hunt for nutrients at sea and will travel up to 13,000 kilometers to feed. They can also dive up to 7 meters underwater!





Ruby Chew

There are about 250,000 of these seabirds remaining and their population is at a steady annual decline of 5%, which is more than any other albatross species. One of their biggest threats is bycatch. This is when a profusion of marine life is trapped by commercial fishing nets up to 80 miles long. Reports from 1998 and 1999 show that illegal and unregulated commercial fishing in the Indian Ocean killed about 10-20 thousand Albatrosses. Imagine what those numbers look like 20 years later. Another evident cause of a decline in these Albatross populations is climate change. The rising temperatures on the sea's surface cause food shortages, as fish prefer colder temps which they seek deeper underwater. Additionally, the high winds that come with extreme changes in weather have been proven deadly to Albatross chicks.

Luckily a lot is being done to help protect these magnificent animals. The British Antarctic Survey (BAC) has programs on Bird Island, which is off the coast of South Georgia, that monitor the seabirds long-term. They are also partnering with corporations such as the Royal Society for Protection of Birds and BirdLife International to enhance marine protection and research Albatross mortality. There are also efforts by the British Government to ban commercial fishing within a certain radius of South Atlantic islands. Earth is home to so many beautiful and diverse species, and it is our responsibility to help them thrive.

Credits & Contacts

Celeste Acosta
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Avery Aldoroty
Cecelia Bichette
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Violet Chandler
Ruby Chew
Morgan Gaskell
Gianna Gullon
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Emma Hungerford
Madeleine Lees
Cam Leyva
Olivia Lopez
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Check out our website:

https://msorret.wixsite.com/ onlineclassroom/women-in-stem-newsletter

HAVE QUESTIONS? WANT TO GET INVOLVED?
WANT TO BE FEATURED IN A FUTURE NEWSLETTER?

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