

Fall 2024

Volume 22

NATURAL SELECTIONS



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Cover photo by Tristan Schramer, EEB Ph.D. Candidate

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Letter from the *Chair*



Sustainability is more than a buzzword in the Department of Ecology and Evolutionary Biology.

I have been impressed by the University of Michigan's growing commitment to sustainability and carbon neutrality, and the leadership role that the College of Literature, Science, and the Arts (LSA) has taken on this initiative. In 2021, I was appointed to a task force to help the college speed up sustainability initiatives in operations, travel and purchasing, research, and the curriculum. Since 2023, I've been Co-Chair of a group of faculty, staff, and students from across the college. I'm pleased with the progress we've made, including launching the LSA's Year of Sustainability, which has supported a variety of staff, faculty, and student-led initiatives to move toward carbon neutrality, reduce waste, and increase biodiversity on campus. EEB has led a variety of initiatives, including reducing the carbon footprint of the meals we purchase and helping to install pollinator gardens (and studying the pollinators in them!). We also teach a number of sustainability-focused courses. And finally, a core part of our research profile focuses on the impacts of global change on biodiversity and ecosystem function. We'll continue to be leaders and best in the science of sustainability.

At the same time we've been engaged in the Year of Sustainability, I've been thinking about another use of the word "sustainability" (warning: this is a stretch...). Namely, that our department has sustained itself for almost 25 years: we're going to celebrate its 25th birthday in 2026! Of course, the Departments of Zoology, Botany, and then Biology go back to the earliest days of the University of Michigan, and our Department emerged from those. But I still think 25 years is an important milestone to celebrate, which we will sometime in early 2026 by inviting alumni, former faculty, postdocs, and others back to campus to celebrate with us. Stay tuned for more on that.

Finally, I'm excited about how the academic year has started (except for the Wolverines' season on the football field) and where it's headed. As you'll see in the rest of this newsletter, there's A LOT happening in EEB these days, with another amazing class of first-year students, more majors than we've ever had, and exciting new faculty and staff joining EEB all the time. And of course, our faculty continue to win awards: Aimée Classen and Lacey Knowles were elected to the American Association for the Advancement of Science, and John Vandermeer was elected to the American Academy of Arts and Sciences.

I hope you're all thriving, wherever you are in the world. Keep in touch, and Go Blue!

Nathan Sanden

Professor and Chair of EEB

WELCOMING DR. ANSHUMAN SWAIN



The University of Michigan's Department of Ecology and Evolutionary Biology is excited to welcome Anshuman Swain, a new faculty member whose arrival we have been eagerly anticipating.

Anshuman Swain's move to the University of Michigan from Harvard University opens an exciting new chapter for the Department of Ecology and Evolutionary Biology. His diverse research interests, combined with his interdisciplinary approach, will significantly contribute to the department's mission. We look forward to the innovative research and collaborations that Anshuman will bring to our community.

"I couldn't be more thrilled about joining such a dynamic and supportive environment. There's so much potential [for me] here, and I can't wait to start contributing," says Anshuman.

Anshuman's research vision at Michigan includes examining plant-insect interactions in terrestrial ecosystems and studying planktonic microorganisms in marine environments, in both cases using fossils. By integrating these two realms, he aims to understand how species interactions and distributions are shaped by environmental factors. His approach to science has already yielded valuable insights into ecological and evolutionary processes over long temporal scales, with more important insights on the horizon.

Originally hailing from a small mining town in Odisha, India, next to a national forest and a coal mine, Anshuman's journey to becoming a scientist is as inspiring as it is unique. Growing up, access to higher education was a challenge, and far-flung aspirations like becoming a scientist felt out of reach. However, Anshuman's determination and academic excellence paved the way for a scholarship to a city school where he first encountered a large library.

"If someone had asked me back then about becoming a scientist, I don't think I would have imagined it. Growing up, most people around me aimed to become engineers or doctors. But those early experiences of nature left a lasting impact on me," reflects Anshuman.

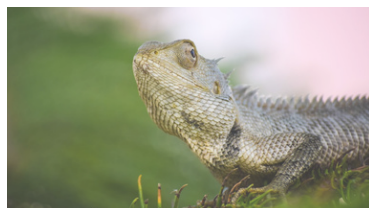
The transformative experience of moving to Bangalore for his undergraduate studies at the Indian Institute of Science (IISc) marked the beginning of Anshuman's academic journey in physics, a subject he chose because it closely aligned with engineering—a conventional career path. However, it was a serendipitous encounter with courses in ecology and early life on Earth that ignited his passion for the natural world. "In Bangalore, I took courses in ecology and early life on Earth and realized people could make a living studying these subjects. My childhood experiences living near a national forest made a deep impact on my interests," Anshuman shares.

During his undergraduate years, Anshuman realized that a career in ecology was not only possible but deeply alluring, given his upbringing in a region lush with biodiversity. This newfound interest led him to pursue a PhD at the University of Maryland under the guidance of Dr. Bill Fagan, who appreciated Anshuman's strong quantitative background and provided him the freedom to explore various research areas.

"Bill Fagan was incredibly supportive. He allowed me to explore different fields and emphasized the importance of finishing each project, which taught me discipline and commitment," says Anshuman.

A Kachinda, also called as the Indian chameleon (*Chamaeleo zeylanicus*) stares out into the pink sky, Eastern Ghats, India.

Picture credit: Anshuman Swain





Shot in Glacier National Park, Montana
Picture Credit: Anshuman Swain

Throughout his PhD, Anshuman explored an array of topics, from microbial ecology to fish and experiments with ants. This eclectic approach allowed him to develop a broad set of skills and knowledge, which he diligently applied to his research. His dissertation focused on microbial ecology, investigating how interactions between microbes influence community diversity and environmental events.

"I struggled for the first two years to figure out my exact interest. Eventually, I accepted that I was interested in many things, from microbes to fish to plant-insect interactions," Anshuman explains.

In addition to his primary research, Anshuman pursued his interest in paleontology by working on plant-insect interactions in the fossil record. This side project led to collaborative opportunities with the Smithsonian. His work, integrating quantitative methods with paleontological data, has resulted in significant publications, including two high-impact papers in *Nature* (see QR code). These studies provided insights into major extinction events and community changes over the last 66 million years in marine ecosystems.

Anshuman's multifaceted research aligns perfectly with the strengths of EEB, Paleontology, and Complex Systems. The opportunity to collaborate with experts such as Dr. Nate Sanders, Dr. Marjorie Weber, and Dr. Mia Howard, among others, was a compelling factor in his decision to join the faculty. Anshuman is excited about the rich resources and collaborative environment at Michigan, particularly the significant collections at the Research Museum Center.

"Ann Arbor is excellent in EEB, paleontology, and complex systems—the three areas I work in. It felt like a perfect match," Anshuman notes with excitement. "In my first year, I plan to continue my work on understanding the response of planktic forams (small amoeba-like organisms that make shells) to major climatic perturbations. In addition, I will work on the evolution of terrestrial plant, insect, and plant-insect interactions. I will achieve this through a mix of fieldwork, data from museum specimens, and theoretical models. Recently, our work on one such site (which we dug near Boston) was published in *Nature Communications*, (see QR code) and I want to continue working on this site (Wamsutta Formation) further".

Anshuman will officially join the department in January 2025 and his wife, Srishti Sood, a PhD Candidate in Sociocultural Anthropology at the George Washington University in Washington, D.C., will join him in Ann Arbor later in the year. As someone who has experienced both tropical climates and harsh winters, Anshuman is well-prepared for Michigan's seasonal extremes!

In addition to his academic pursuits, Anshuman is an avid photographer, capturing the beauty of the natural world through his lens. His photographs will undoubtedly add a vibrant visual dimension to his research endeavors at Michigan, and he'll probably be tough to beat in our annual photography contest.

"I'm very lucky to have had great mentors and a supportive partner. I'm excited about the next chapter at Michigan, both for my career and for the opportunity to contribute to the community," Anshuman concludes.

For further details, visit:



Dr. Anshuman Swain on the field.



2024

GRAD STUDENT COHORT

Welcome



Back row, left to right: Zhizhou Jia, Manasven Raina, Ruiqi Yuan, Mars Woodward, Sean Richards, Joseph Caldwell, Hanna Petroski, Peri Cooper, Juan Manuel Cely Arevalo
Front row, left to right: Emma Foster, Kaira Liggett-Schaefer, Manar Talab, Susan Lusardi, Samantha Henry, Aleana Savage.
Not pictured: Zeer Cen, Kaori Chambers, Cam Durant, Brenda Hernandez, Brittany Amaral.

PH.D.

Joseph Caldwell

Advisor: Elizabeth Tibbetts
Research Interests: Animal behavior, cognition, ethology, evolution

Kaori Chambers

Advisor: Alison Davis Rabosky
Research Interests: Biogeography, morphometrics, systematics

Zeer Cen

Advisor: Luis Zaman
Research Interests: Microbial ecology, microbial interactions, phage

Peri Cooper

Advisor: George Kling
Research Interests: Microbial ecology, aquatic biogeochemistry

"I choose UMich EEB because not only could I tell my PI is kind hearted but she also fully supports me pursuing my exact research interests, providing support and room for independence."
Mars Woodward

Cam Durant

Advisor: Regina Baucom
Research Interests: Evolution, ecology, genomics, trade-offs

Brenda Hernandez

Advisor: Aimée Classen
Research Interests: Soil ecology, global change ecology

Hanna Petroski

Advisor: Mia Howard
Research Interests: Microbial community ecology

Sean Richards

Advisor: Jake Allgeier
Research Interests: Ecosystem ecology, marine, coral reef, production

Mars Woodward

Advisor: Kelly Speer and Luis Zaman
Research Interests: Disease ecology, public health, conservation

Emma Foster

Advisor: Regina Baucom
Research Interests: Impact of global change on genetic diversity

Zhizhou Jia

Advisor: George Zhang
Research Interests: Evolutionary biology, gene regulation, adaptation

Manasven Raina

Advisor: Luis Zaman
Research Interests: Host pathogen/parasite evolutionary interactions

Aleana Savage

Advisor: Kelly Speer and Meghan Duffy
Research Interests: Ectoparasites, bats, pathogens, population ecology

Ruiqi Yuan

Advisor: George Zhang
Research Interests: Molecular evolution

"UofM has a great reputation and a high ranking. I am interested in molecular evolution and EEB has many researchers in that field. Particularly, I am very interested in my PhD advisor's work."
Ruiqi Yuan

"I chose this program because it is one of the best in the US."
Zhizhou Jia

FRONTIERS M.S.

Samantha Henry

Research Interests: Animal behavior, communication, evolution

Susan Lusardi

Research Interests: Plant taxonomy, systematics, genomics

Kaira Liggett-Schaefer

Research Interests: Plant and community ecology, microbes, conservation

Manar Talab

Research Interests: Climate change, community ecology, restoration

"I chose EEB because of the community!"
Brenda Hernandez

EEB M.S.

Brittany Amaral

Advisor: Liliana Cortés Ortiz
Research Interests: Animal behavior, biodiversity

Juan Manuel Cely Arevalo

Advisor: María Natalia Umaña
Research Interests: Plant functional ecology



SUPPORT OUR GRAD STUDENTS:



ALUMNUS SPOTLIGHT: WARREN ABRAHAMSON



Dr. Abrahamson talking to EEB student Peter Falb in front of the plant species he studied over his career: goldenrod (*Solidago*). From our alumnus being the world's expert on it to our current faculty and PhD students studying it (Dr. Mia Howard, PhD student Julia Eckberg, and Dr. Nate Sanders) maybe one day we'll have only goldenrods outside of our building!

Warren “abe” Abrahamson is a rockstar in plant-insect interactions, the world's expert on goldenrod, and a wonderful person to talk with. EEB PhD student **Emma Dawson-Glass**, undergrad **Peter Falb**, and EEB Chair **Nate Sanders** had the opportunity to sit down for a long conversation that spanned from his Michigan college life in the '60s to the importance of mentoring and the future of biology.

An esteemed educator and prolific researcher, Dr. Abrahamson held the endowed David Burpee Chair in Plant Genetics at Bucknell University for nearly three decades. A dedicated Research Associate of Archbold Biological Station since 1976, he has published over 170 scientific articles and two books, mentored 21 post-doctoral fellows, and earned numerous accolades, including being elected to be a Fellow of the American Association for the Advancement of Science (AAAS) in 2008. His research spans various ecological and evolutionary topics, focusing on the interactions among host plants, their herbivores, and natural enemies and the dynamics of Florida Scrub vegetation. Renowned for his conservation efforts and recognized with multiple awards, Dr. Abrahamson continues to engage passionately in research, land management, and education in his retirement, all while enjoying pursuits such as land conservation, antique farm machinery, and world travel.

Q: Tell us a bit about yourself

A: I came to Michigan with one goal: to graduate. I'm a first-generation college graduate from Ludington, a fairly rural area. Michigan was the only place I applied because my cousin, David Dennison, spoke highly of it. He worked on the Manhattan Project and even had a building named after him. I arrived here in 1965, inspired by the incredible support and opportunities.

Q: What classes do you remember? Which faculty?

A: My first memory on campus was the summer orientation. It was exciting but also stressful; you had to get your course schedule sorted. I lived in East Quad, in Anderson House. One significant course was Dendrology with Warren Wagner and Burton Barnes. Wagner's lectures were incredibly engaging – he was an entertainer. Another pivotal course was Organic Evolution with Arnold Kluge and Otto Solberg, even though a computer failure led me to a life-changing 15-minute conversation with Solberg, who offered me a summer job.

Q: Who were some of the key mentors during your early years, and what roles did they play in your development as a researcher and academic?

A: Otto Solberg and Warren Wagner were vital mentors. Solberg provided opportunities but wasn't hands-on; he let you either succeed or fail on your own. Wagner was an engaging model teacher. Also, Ed Voss was crucial, especially during the Vietnam War era, when he advised me on potential conscientious objection and medical deferment, significantly altering my life path.

Q: What research did you work on here? Describe the path that led you there.

A: My research journey began with a summer job at the Botanical Gardens, which resulted in my first publication. I was tasked with analyzing plant chemicals for systematic purposes, focusing on species of Asters collected from different elevations and latitudes. This hands-on experience opened my eyes to the possibilities in academia.

Q: How did your experience as an undergraduate researcher in Michigan shape your trajectory?

A: My time as an undergraduate researcher at Michigan was transformative. The experience of being treated as a colleague by Herb Wagner and other faculty members made me realize I could carve out a career in academia. Courses and summer research solidified my interest in ecology and evolutionary biology.

Q: How did your experience as an undergraduate researcher shape the way you approached mentorship as a scientist?

A: The mentors at Michigan taught me the importance of giving opportunities and sharing life experiences. At Bucknell University, where I spent 40 years, we prided ourselves on engaging undergraduates in the process of science. I often shared my own experiences from Michigan to inspire students. I wanted my postdocs to be part of the department, requiring them to teach one course a year to integrate them into the academic community.

Q: If you could give advice to yourself as an undergraduate student, what would it be? What about advice to students today?

A: My advice would be to seize opportunities and be open to different directions. Find a place and group where your interests align. Visit potential graduate programs, talk to faculty and grad students, and look for strong support systems. Find a place that feels like home and offers good mentorship.

Q: What are some things you miss about being a student at Michigan/in Ann Arbor?

A: I miss the incredible mentors and the sense of being part of a vibrant academic community. The natural surroundings and the old forests near campus were also special.

Q: What makes you excited about the future of biology, and how do you feel like students at Michigan could be a part of that?

A: I'm excited about interdisciplinary collaboration in solving ecological problems. I've seen the power of connecting various sectors and expertise in projects like the Florida Wildlife Corridor Project. Students at Michigan should embrace this collaborative approach to address global environmental challenges.

Q: Any final thoughts on your academic journey?

A: Science isn't just facts; it's a process. Engage in this process, learn from failures, and appreciate the journey. Sharing knowledge and mentoring others is immensely fulfilling and vital for scientific progress. Michigan played a crucial role in shaping my career, and it continues to provide a solid foundation for future scientists.

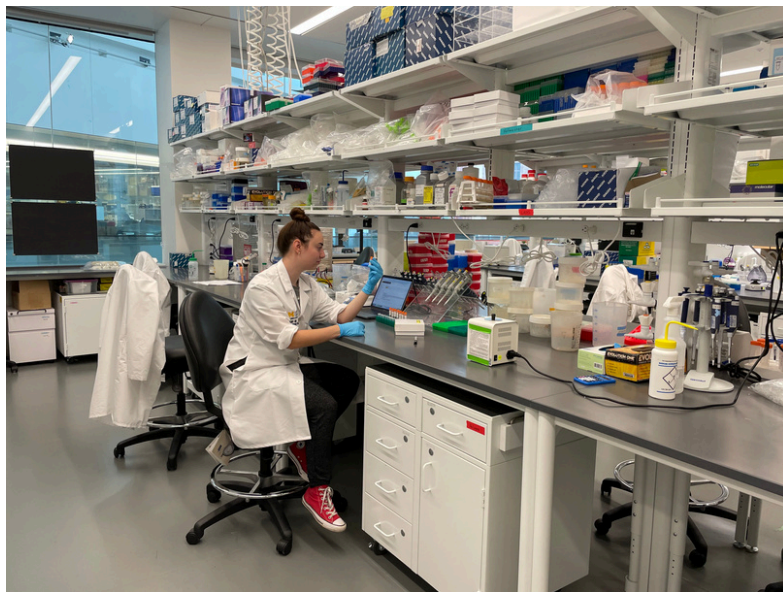
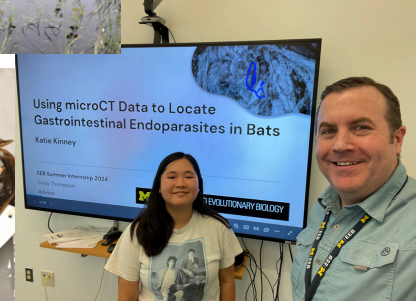


EEB'S LATEST INITIATIVE: SUMMER INTERNSHIPS

"**Katie Kinney's** summer research program focused on identifying parasites in fluid-preserved bat specimens in the mammal collections. She focused on gastrointestinal parasites, and found some positive results. We are currently doing some dissections of the stomach and intestines to verify those data, and we are considering expanding her project into an undergraduate thesis."

-Cody Thompson

*Collection Manager, Division of Mammals
and Associate Research Scientist*



Macy Arnett is pictured here working in the Biodiversity Lab, extracting DNA from starlings. "Macy had never taken a lab course or worked in a lab prior to her internship, and she took to it amazingly! She's now continuing to work with Jill Myers to help maintain the lab during the academic year, and I'm really glad that she's enjoying lab-based work so much. In addition to her lab work, Macy helped me work through historical sightings of starlings throughout North America, and converted many field notes and natural history observations into categorical and quantitative data that we'll use in a few upcoming publications."

-Natalie Hofmeister

Assistant Professor

"**Hennessey Wilkins** participated in parts of my June and August fieldwork outings around Ann Arbor (live-trapping small mammals in agricultural and non-agricultural habitats). She also began developing (and is continuing to work on in an independent study) a research project exploring the relationships between things like predator richness and detection frequency on small mammal trapping success across seasons and habitat types!"

-Mariah Schlis-Elias

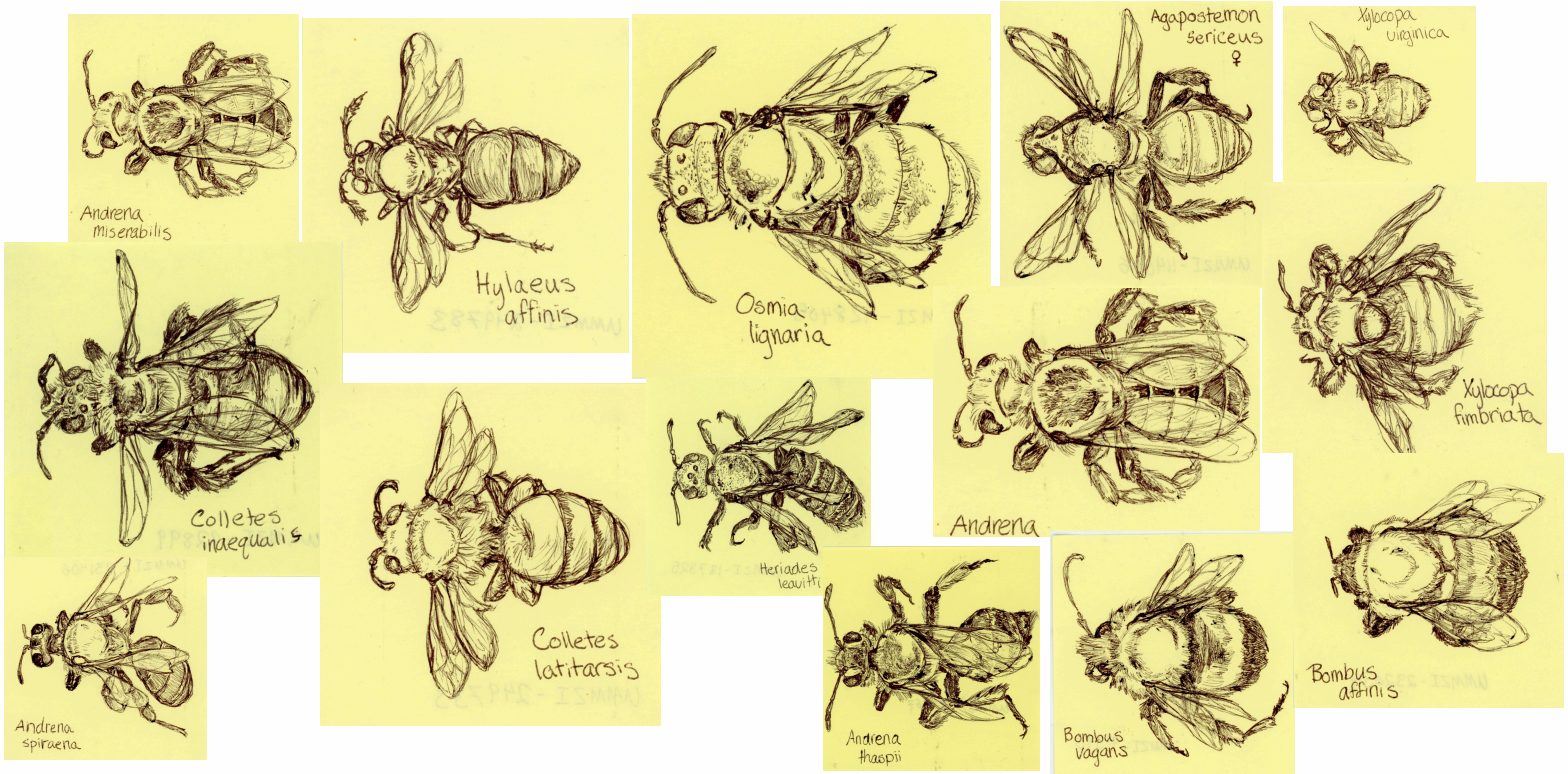
PhD Candidate



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NOTES FROM THE MUSEUM OF ZOOLOGY



A'liya Spinner is no ordinary laboratory technician. By day, she meticulously handled delicate specimens for the University of Michigan **Museum of Zoology**, under the supervision and guidance of **K. Taro Eldredge**, the Insect Collection Manager, ensuring each one was carefully preserved and cataloged for future research. But during her brief breaks, A'liya tapped into her passion for art and nature by sketching bees on yellow Post-it notes. This unique hobby started as a series of stress-relief doodles, providing a welcome diversion from the rigor of her responsibilities. Over the course of about a year, these sketches evolved into a remarkable collection! Sketching with a ballpoint pen was a new challenge for A'liya, who usually prefers the flexibility of pencils. With ink, every line is permanent, demanding a level of intentionality and commitment that she wasn't initially accustomed to. Yet, this challenge made her more deliberate in her strokes, turning quick, loose sketches into detailed renderings of her subjects. Mistakes were inevitable, but A'liya soon discovered that the characteristics of bees—especially their bristled bodies—allowed her to cleverly hide any errors among the intricate details.

What started as casual doodles soon became an eye-opening journey into the world of bees. As A'liya meticulously copied the fine details of various species, she began to appreciate the vast diversity within the bee family. Megachile bees, with their large, dramatic jaws; Bombus bees, boasting an endearing excess of fluff and large abdomens; and the sleek, streamlined *Andrena* bees—all revealed themselves to be uniquely fascinating in their own right.

Each box of specimens she sifted through for the perfect muse highlighted the remarkable differences between even individual bees of the same species.

Beyond her artistic endeavors, **A'liya is also a dedicated Ecology and Evolutionary Biology student**, working full-time to master her field, and this semester she faces a new and daunting challenge: applying to grad school. In the end, A'liya's journey at the **Museum of Zoology**, and her heartfelt bee doodles are more than just hobbies—they are expressions of her passion for the natural world and her commitment to understanding it more deeply. These experiences enriched her academically and gave her the resilience and inspiration needed to pursue her dreams. As she looks to the future, filled with both excitement and nervous anticipation, A'liya knows that her love for ecology, biology, and her tiny ink-rendered companions will guide her every step of the way. Reflecting on her journey, A'liya often reminds herself of a quote by the naturalist John Muir: "The power of imagination makes us infinite." For A'liya, her imagination has already taken her far, and she is excited to see where it would lead her next.



A'liya's desktop at the Museum of Zoology, with the Post-it sketches.



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