



Program Subject to Change. Last Updated 7/17/2024

Tuesday, July 23

2:00pm-4:00pm Registration - Presidio Desk

4:00pm-6:00pm Ice Breaker - Presidio III,IV,V

Wednesday, July 24

6:00am - 8:00am Registration - Presidio Desk

1:30pm - 5:30pm Registration - Presidio Desk

FIELD TRIPS - Pre-registration required. **All field trips will meet at Presidio Registration Desk.** To help keep the cost of the field trips down and to be sympathetic to those that do not feel comfortable riding in closed vehicles with large groups of people we will be asking for volunteers to help with carpools for the field trips. All field trips will be supplied with light snacks and water. Please bring a refillable water bottle, best to start with it filled!

6:30am-4:00pm Canyon Crawlers & Field Fliers

Co-led by Zack Lemann, Audubon Insectarium; Clayton Leopold, Moody Gardens

If you love observing bugs, learning about bugs, or collecting bugs, consider the unrivalled joy of waking up in time to spend a whole day exploring southern Arizona's amazing arthropods with two dozen like-minded insect enthusiasts. The trip leaders may be wacky, but you'll go to cactus patches, scrubland, meadows, wetlands, and montane habitats all in one glorious, fast-paced day.

Centipedes under stones

Beetles on bovine scat

Dashing dragonflies

Oh, yeah – we got ALL o' that!

Collecting is allowed- 24 participants

6:45am-4:00pm Border Bugs 2024**Led by Jim Melli, San Diego Natural History Museum**

The area near the border is rich in biodiversity. We will explore several spots along Ruby Road where we can discover all manner of groovy arthropods. Critters other than arthropods such as the thorn scrub hook-nose snake and brown vine snake may show up and we are likely to see the gorgeous Montezuma quail, or perhaps, Javelina or coati. The spectacular landscape is excellent camera fodder. Come along, we'll have a blast.

Collecting is allowed- 12 participants

7:00am-4:00pm Tour Of Four Huachuca Canyons**Led by Emma Califf**

Join Emma Califf on a tour of the Canyons! Hunter Canyon, Ash Canyon, Miller Canyon, and Carr Canyon, all within 10 minute drives of each other, hold several beautiful biotic communities, from semi desert grassland to riparian woodland. The variation in habitats allows for a vast biodiversity of invertebrates, along with an abundance of other animals. July is the perfect time to catch the emergence of orthopterans like the panther-spotted grasshopper and the rainbow grasshopper. We may also see a variety of butterflies, beetles, and arachnids, in addition to the many reptiles and amphibians who find home in the Huachucas. Wear closed-toe shoes and bring plenty of water.

No collecting- 12 participants

7:15am-4:00pm Saguaro National Park Madrona Pools**Led by Lucas Hetherington, Saguaro National Park**

Take a trip to Saguaro National Park, where we will be granted access to a secluded area of the Rincon Mountains where perennial waters fill tinajas and support a wide variety of wild creatures in a very unique habitat. Make sure to bring close toed shoes and sun protection in addition to lots of snacks and water for this canyon adventure. After exploring the canyon we will visit the Visitor Center and drive around the Cactus Forest Loop of Saguaro NP (time permitting).

No collecting- 11 participants

7:30am- 1:00pm Butterfly Trail on Mt Lemmon Fieldtrip**Led by Irene Dickinson, Arizona Monarch Collaborative/ Desert Botanical Garden**

Arizona has the second highest butterfly biodiversity only behind Texas. Mt. Lemmon is the hot spot for many of these unique species such as the Arizona Hairstreak and the Coronado Checkerspot. We will stop by two locations on the slopes of Mt Lemmon first stop at Gordon Hirabayashi Campground which is located in the pine-oak grassland habitat. Then we will stop at the Marshall Gulch Picnic which is close to the summit of Mt. Lemmon in the conifer forest habitat.

No collecting- 12 participants

EVENING EVENTS

5:30pm - 9:00pm Welcome, Keynote Presentation, and Reception - Presidio III,IV,V

IECC 2024 Keynote Speaker, Scott Black, Executive Director Xerces Society

Scott Black is an internationally known conservationist who has been at the forefront of the conservation movement for over three decades. He is executive director of the Xerces Society for Invertebrate Conservation, which under his leadership has become the premier invertebrate conservation organization in North America.

Scott's work has led to protection and restoration of habitat on millions of acres of rangelands, forests, and farmland as well as protection for many endangered species. He is an author of the best-selling *Gardening for Butterflies and Attracting Native Pollinators* and has written more than two hundred other publications. His work has been honored with several awards, including the 2011 Colorado State University College of Agricultural Sciences Honor Alumnus Award, the U.S. Forest Service Wings Across the Americas 2012 Butterfly Conservation Award and the 2019 Wings Across the Americas International Research Partnership Award.

Scott serves on the advisory council of the Center for Regenerative Solutions which is accelerating the implementation of regenerative, nature-based climate solutions in cities and also serves on the Trinational Monarch Science Partnership – a partnership of federal agencies and scientists from Mexico, the United States, and Canada which works to understand and conserve monarch butterflies across North America.

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Thursday, July 25

8:00am - 4:00pm Registration -- Registration may close during paper sessions and lunch. - Presidio I,II

8:00am - 4:00pm Silent Auction Presidio I, II

8:00am - 4:00pm Please visit our Vendors. Presidio I, II

MORNING WORKSHOPS

8:30am-11:30am Bridging Accessibility and Empathy: Inclusive Programs with Arthropods Led by - Karen Verderame, University of Pennsylvania School of Veterinary Medicine - Joshua Tree

As informal science educators, we have the opportunity to provide accessible programming for diverse learners through inclusive and multifaceted teaching methods. In this workshop, we explore how to incorporate user-led teaching techniques of Inquiry Based and Project Based Learning into programming, making them accessible to all types of learners. Also, discover how arthropods in programming can forge relevant, impactful, and empathetic connections with diverse learning styles. Workshop will include teaching/engagement strategies, active participation, and discussion time. Participants will have access to outlines of lesson plans, resources on Inquiry Based and Project based learning, and resources on neurodiverse learners.

FIELDTRIPS

9:00am-10:00am Behind the Scenes at the Arizona – Sonora Desert Museum

Led by Tom Weaver, Arizona -Sonora Desert Museum - Meet at Presidio Registration Desk

Come see behind the scenes at the Arizona-Sonora Desert Museum with Curator of Herpetology, Ichthyology, and Invertebrate Zoology Tom Weaver. Get a look at our diverse collection of snakes, amphibians, inverts, and more. The Museum opens at 7:30 am, please use your free admission to the general Museum grounds for conference-goers! Tom will meet you at 9am in the Reptile and Invertebrate Hall for a tour of the collection. Space is limited to 8 participants, and this is a no collecting field trip.

11:30pm – 12:45pm COMPLIMENTARY lunch provided for conference participants - Presidio III,IV,V

12:45pm-1:00pm Welcome and Announcements - Presidio III,IV,V

PAPER SESSION:

1:00pm-2:40pm Outreach and Education: Synchronize Your Emergence - Presidio III,IV,V

**1:00pm-1:20pm Community Composting with Invertebrates: Programs, pillbugs, and people power
Giangelo "Gio" Leos, Food ED (Food Exploration & Discovery)**

Sustainable living is more than a trend, but a necessary skill that permeates how we think about our food systems, soil and air quality, and relationship with the Earth. Composting is becoming mandatory in states and cities with a growing contingency of composters turning their waste into a community resource. Composting is the new recycling and invertebrates are the gateway bug to engage diverse communities. We will explore the development of composting programs with invertebrates, working

with diverse invertebrates to break down organic matter, and how community connections can be built on the wisdom of worms, pillbugs, and springtails.

1:20pm-1:40pm Lessons Learned from Ladybug Learning in 5th Grade Classrooms

Christine Goforth, NC Museum of Natural Sciences

Fifth grade student at fifty schools in North Carolina have been participating in the Lost Ladybug Project for the past three years as part of a research study looking at the effectiveness of providing support materials for teachers interested in bringing citizen/community science into their classrooms. We will take you into the classrooms of our case study teachers and share the lessons learned from the study so far. We will also discuss the implications for bringing similar projects into elementary classrooms.

1:40pm-2:00pm Inspiring Curiosity: Outreach Programs to Build Community

Kristin Rossetti and Matthew Standridge, Florida Museum, University of Florida

Insects are diverse, charismatic, and ubiquitous, which makes them wonderful for outreach. We discuss a variety of outreach programs designed to help the public get involved with conservation in tangible ways. From butterfly garden plantings at schools and community centers to butterfly themed beer launches and plant giveaways, our events are always enhanced by “meet a bug” activities. Showcasing native insects allows members of the public to “meet their neighbors,” overcome fears, and opens the door to rich discussions about broader conservation work.

2:00pm-2:20pm Bridging the Bug Gaps: Towards Integrative Entomological Collections and Educational Approaches

Joshua Kulak, Undergraduate student, Franklin & Marshall College & long term volunteer for the Academy of Natural Sciences and North Museum

With over 1,000,000 described species, insects make up the majority of animal diversity, and comprise a huge portion of institutional deadstock collections and the research associated with them. Despite this, there are substantial disparities between insect abundance in largely publicly inaccessible deadstock collections, and their relatively low presence in living collections, educational programming, and global conservation efforts. This paper/presentation outlines the extent of this problem, and more broadly asks what deadstock and living collections can learn from one another in collaboration. Furthermore, it investigates how integrative training across both contexts can better entomology as a whole.

2:20pm-2:30pm The Questions They Have, and the Roles We Play

Travis McEnery, Science Communication on YouTube

I examine and share what I have learned after a year and a half of making long-form spider content on YouTube. I discuss the surprising response from everyday people to the in-depth, research-focused content I've been creating, the current skepticism of scientists' statements, and the importance of communicating not just what we know, but how we know it. I also consider the roles of the research scientist and the science communicator, and especially, the critical relationship between the two necessary to overcome the barriers that currently stand between sound scientific knowledge and the everyday people who seek it.

2:30pm-2:40pm Undergraduate Partnerships in Developing Insect Education Resources for Outreach at the Michigan State University Bug House

Amanda Lorenz Michigan State University Department of Entomology Thanks to a recent grant, the MSU Bug House has been able to hire two undergraduate students each summer over three years to develop educational materials and programs aligned with the Bug House's mission. Each student writes, directs, and acts in their own short video on an entomological topic of public interest. Additionally, they contribute to the development of a one-day workshop for local teachers, the aim of which is to equip educators with the resources to integrate live arthropods into their curricula. This talk will summarize the accomplishments and challenges of these initiatives.

2:40pm-3:00pm Announcements and Break - Presidio III,IV,V

PAPER SESSION:

3:00pm-4:50 pm Stuck in the Midden with You - Presidio III,IV,V

3:00pm-3:20 A Tough Pupal Cell to Crack: Another Attempt at Unlocking the Secrets of *Moneilema gigas* Propagation

Maria Buckner, Woodland Park Zoo

Cactus longhorn beetles, a large, charismatic desert dweller, has been brought back to many an institution for guests to admire. The adults are easy enough to care for, if you have a steady supply of cactus pads, but successfully and consistently getting grubs to adulthood is another matter. While no adults have emerged this year (yet...or have they?), we hope to share our methods and ideas for improvement.

3:20pm-3:40pm *Abedus herberti* husbandry: A Tale of Two Settings

Ian Hudson, San Diego Zoo

Abedus herberti present unique husbandry challenges due to the species' aquatic natural history. The successes and difficulties encountered while raising two groups of *A. herberti* at San Diego Zoo were investigated to identify environmental causes for the disparities observed between the groups. Although both groups were raised from the same initial population, only the propagation population produced stable numbers of breeding adults. Differences in light, heat, water quality, cannibalism, sex ratio, and perching may have impeded the exhibit group's development. Stimuli which induce stream abandonment or phototactic learning behaviors may also be present. By making precise distinctions between the groups, we aim to improve both habitats and continue a robust *A. herberti* husbandry program.

3:40pm-4:00pm Big Beetle Bounty: How we (almost) perfected the rearing of *Goliathus* and other giants

Jason Schaller, Albuquerque BioPark

Goliath beetles have it all when it comes to big beetle appeal: massive size, beautiful patterns, day active, long lived, hardy... yet producing decent numbers of large, healthy adults consistently has proven difficult and laborious for those attempting to do so. After 6 years of experimentation, we have developed a rearing protocol that results in high survival from larva to active adult (84%), produces large

males with comparable sizes to wild adults, and greatly reduces the overall labor and cost compared to other methods. We've also streamlined protocols for other large scarabs that we will briefly review.

4:00pm-4:20pm Cracking the code of *Lesina blanchardi* husbandry

Renee E. Hazen, Saint Louis Zoo

Dragon-headed katydids (*Lesina blanchardi*) are eye-catching bush crickets with unique behaviors. As interest in the exhibition of these animals grows, it becomes crucial to establish proper husbandry protocols to ensure their well-being and to promote sustained reproduction in captivity. This paper is an overview of the husbandry requirements for dragon-headed katydids, drawing upon present literature, hobbyist's insights, and practical experience. Topics to be covered include enclosure design, temperature and humidity regulation, dietary needs, social dynamics, and enrichment. Through consideration of these elements, zoos and similar institutions can provide an environment that encourages the natural behaviors, robust health, and successful reproduction of dragon-headed katydids, in turn enhancing the educational value of their exhibits.

4:20pm-4:40pm Beetle Breeding Adventures at Houston Zoo, 2023-2024

Julie LaTurner, Houston Zoo

Breeding of many species of beetles continues at the Houston Zoo. This is the story of the progress made from 2023 into 2024. A self-sustaining rainbow colony of tiny *Lamprima adolphinae* stags. Distribution of beetles for the first phase of US-native *Dynastes* for SWARM. The first *Euchirus* scarabs to be raised and successfully emerge from pupation in the US. These are some of the updates we are excited to share with everyone, as well as more in-depth information about how we are preparing habitats for breeding, and our larval care routine.

4:40pm-4:50pm Grabbing Water Scorpion Rearing by the Raptorial Claws

Kenny Hooker, Thanksgiving Point Butterfly Biosphere

Water scorpions (*Ranatra* sp.) are insects that inhabit slow moving or still, fresh bodies of water throughout North America. They are predatory hemipterans, gripping sticks or reeds with their hind legs and using their raptorial forelegs to capture prey as it swims past. Thanksgiving Point has exhibited water scorpions for 5 years, in mixed species enclosures as well as alone. We began to rear them in 2023, and with some trial and error have reared multiple individuals to adulthood. This paper will share our husbandry protocols and our process for rearing.

4:50pm – 6:00pm HUSBANDRY/WELFARE BREAKOUT SESSION

The Husbandry Break Out session is organized to promote the discussion of husbandry in our industry, and to expand on the topics presented in the preceding paper session. All are welcome to join! --
Facilitator Erin Sullivan - Woodland Park Zoo

7:00pm – 9:00pm INSECT TRIVIA AND GAME NIGHT - Presidio III,IV,V

FIELD TRIPS - Meet at Presidio Registration Desk

7:00pm-10:00pm Night Hike in Douglas Springs With Courtney and Emma Co-Led by Emma Califf and Courtney Christie, Arizona-Sonora Desert Museum

You've seen the Sonoran Desert during the heat of summer, but have you seen it come to life at night? Join Arizona-Sonora Desert Museum keeper Courtney Christie, and Emma Califf for a leisurely night hike and discover the new world that comes alive under the stars. Nestled in the foothills of the Rincon Mountains, just up the street from Saguaro National Park East, Douglas Springs contains a high diversity of flora and fauna. When the sun goes down and the temperature drops (a little), we have a chance to see (not collect) a wide variety of native invertebrates, including but not limited to tarantulas, sun spiders, and scorpions, in addition to the extraordinary local herpetofauna, like Gila monsters, rattlesnakes, and toads. Wear closed-toe shoes, bring plenty of water, and bring a headlamp or flashlight if you have one. (We will supply extras).

No collecting- 12 participants

7:15pm-10:15pm Night Hike Sabino Canyon

Led by Irene Dickinson, Arizona Monarch Collaborative/ Desert Botanical Garden

Sabino Canyon Recreation area is a good hotspot for seeing many interesting invertebrates including some aquatic insects such as sunburst diving beetles and water scorpions. Let's meander and look at something cool! No collecting- 12 participants



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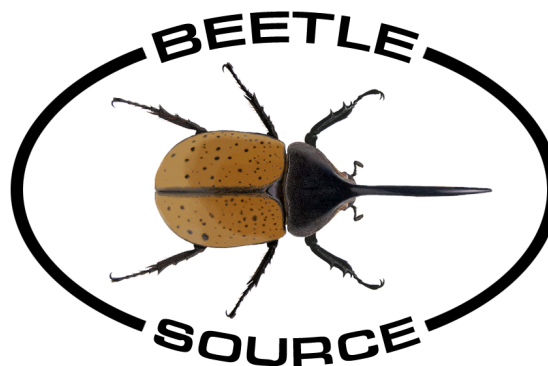


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Friday, July 26

8:00am - 4:00pm Silent Auction Presidio I, II

8:00am - 4:00pm Registration -Registration may close during paper sessions and lunch. Presidio I,II

8:00am - 4:00pm Please visit our Vendors Presidio I,II

MORNING FIELD TRIP - Meet at Presidio Registration Desk

8:30am-10:30am Tucson Botanical Gardens

Led by the Botanical Garden

Enjoy Tucson's midtown oasis during monsoon season! A brief overview of the Gardens' history will be followed by a tour of the Gardens led by the Horticulture Manager. Topics during the tour will include an overview of the Gardens' integrated pest management program, bee box partnership, and soil formation. After the tour of the grounds, the Curator of the Tropical Conservatory will discuss the butterfly program, including a visit inside the greenhouse to see orchids and other tropical plants (butterflies are not present in the summer months). Following the tour, participants can then self-guide to areas of interest, and consider visiting the café and gift shop.

No collecting - 12 Participants

MORNING WORKSHOPS

8:30am-11:30am Insect Science for Preschoolers - Agave Ballroom

Led by Stephanie Dole, Beetelady LLC

Learn how to create engaging programs for 2-5 year-olds using play, movement, music, rhyme, art, and live bugs. Stephanie Dole is a Ph.D. Entomologist who runs the insect education business, Beetelady, through which she teaches all ages about the wonderful world of bugs. Dr. Dole will present on the elements that go into her Insect Science for Preschooler class series in which preschoolers explore topics such as metamorphosis, insect colors, and camouflage. Workshop participants will relive their own buggy childhoods while exploring Beetelady's class materials. In this workshop, you will create sample materials to bring back to your institution for inspiration.

8:30am-11:30am Citizen DNA Barcode Network: Applying Hands-on DNA Barcoding Techniques with Citizen Scientists in Informal Settings PART I - Joshua Tree

Led by Jeffry Petracca, Cold Spring Harbor Laboratory DNA Learning Center

DNA barcoding is a technique that allows for identification of species using an organism's DNA. The skills necessary to conduct DNA barcoding are approachable for diverse audiences, making it a useful tool to engage citizen scientists. This is the foundation of the DNA Learning Center's SEPA-funded Citizen DNA Barcode Network (CDBN), a program that has already engaged nearly 3,000 citizen scientists nationally and generated thousands of DNA sequences. In this workshop, you will learn how to use DNA barcoding to identify insects using hands-on lab techniques. Information will also be available for those interested in implementing DNA barcoding at their institutions with support from CDBN and the DNALC.

This is a two-part workshop. Please also register for workshop session Part 2 on Saturday.

ROUNDTABLES - - Presidio III,IV,V

8:30am-10:00am Beetle breeding, Flake Soil and Larva Care Roundtable

Facilitated by Julie LaTurner - Houston Zoo

We would like to offer the Breeding of Beetles, Flake Soil and Larva rearing roundtable again in 2024, combining all life stage this year! Beetles dovetail to eggs/larva, which dovetails to flake soil—we're ready to tackle it all at once. Come with your questions, your successes, your try-agains, and lets work to increase our ability to breed coleoptera of all kinds in-house.

10:00am-11:30am Butterfly Support Group

Led by Jaret Daniels- Florida Museum of Natural History

Are you one of the growing number of people who are breeding or rearing butterflies in the lab for conservation purposes? This roundtable is for you! Meet (and be part of) your community as we discuss the pleasures, problems, pitfalls and promises of rearing rare butterflies in the lab. Topics include rearing setups, genetic considerations, host plant propagation, holding immature stages over the winter, and just about anything related to culturing butterflies.in captivity. Following last year's roundtable, the group has expanded to include quarterly virtual meetings. This is our annual opportunity to meet in person.

11:30am – 12:45pm COMPLIMENTARY lunch provided for conference participants

12:45-1:00pm Welcome and Announcements

ROUNDTABLE - Presidio III,IV,V

1:00pm-2:00pm USDA Roundtable

Facilitated by Kirk Martin and Ben Slager - APHIS - USDA APHIS PPQ

The USDA permitting round table will be an opportunity to discuss changes to permitting requirements that affect the Arthropod exhibit community in the United States. Significant new changes may be in place by conference time. This gathering is an opportunity to ask questions, get answers, and seek change.

2:00pm-2:20pm Announcements and Break - Presidio III,IV,V

PAPER SESSION: - Presidio III,IV,V

2:20pm-6:00pm Conservation, You're So Rad-ula and TITAG Meeting

2:20pm-2:40pm Advancing our Understanding of At-Risk Butterfly Conservation Efforts

Jaret Daniels, Florida Museum of Natural History, University of Florida

There are currently over thirty butterfly taxa listed under the Endangered Species Act as in the United States with many additional candidates undergoing species status assessments. Effective at-risk species recovery efforts require a comprehensive toolkit of diverse options, of which, ex situ strategies have increasing become an important component. Through a nationwide assessment, we sought to update

our understanding of current activities across practitioners and agency personnel, pinpoint key or emerging needs, opportunities, and barriers, and identify best practices or other resources. The results are discussed in the context of helping to inform practice, increase collaboration, and improve conservation outcomes.

2:40pm-3:00pm Monarchs in Arizona: A Bridge Between Worlds

Irene Dickinson Arizona Monarch Collaborative/ Desert Botanical Garden

Monarchs in Arizona have a unique migration pattern that was only recently discovered. Arizona also offers much for the monarch in terms of habitat and host plant but is facing the same plight as many pollinators around the world. The Arizona Monarch Collaborative is a new kind of effort spanning between organizations to unite under the common cause of conserving the monarch and other pollinators that are so vital to our ecosystems.

3:00pm-3:20pm Changes to Polynesian tree snail (*Partula nodosa*) husbandry

Nicholas Milone, Disney's Animal Kingdom

Disney's Animal Kingdom is one of five AZA institutions housing the Polynesian tree snail (*Partula nodosa*). In an effort to make snail husbandry more efficient a study was started with a new style of holding container. These containers were being used by the nutrition team to prevent freezer burn on meat items. Two different data collection devices were placed into both the old and new containers to allow the collection of temperature, humidity, and light levels. The new containers made snail husbandry more efficient by saving close to 30 minutes in labor daily. These containers eliminate the need for any plastic wrap, and based on our calculations, reduced 1,595,050 square inches of plastic sent to the landfill.

3:20pm-3:40pm Linking Environmental Monitoring of Partula Snail Enclosures to Population

Demography Allie Richardson, Disney's Animal Kingdom

Disney's Animal Kingdom® holds a population of *Partula nodosa* snails that periodically experiences population fluctuations. We implemented a data collection protocol for temperature, humidity, and light in *Partula* enclosures to determine if these parameters are correlated to the fluctuations. These snails are critically threatened and it is imperative to discover the optimal environment for ex situ populations to stabilize and thrive. Preliminary findings suggest that high humidity correlates with increased mortality, and birth and death rates may be tied to seasonal changes. As we explore how environment impacts demography, we hope to establish ideal parameters to support population goals.

3:40pm-4:00pm American Burying Beetle Husbandry: Why Dirt Ain't Doin' It and Why Maggoty Morsels Are

Mandy Pritchard, Cincinnati Zoo & Botanical Garden

Since 2017 the Cincinnati Zoo & Botanical Garden has taken ABBs from the Sandhills of Nebraska, bred them in our rearing facility and reintroduced their offspring to Ohio. We have found that wild caught ABBs have a near perfect breeding success rate and produce large quantities of larvae, but the breeding success and larval production dwindles with each subsequent generation despite avoiding inbreeding entirely. To combat this issue, we took a deeper dive into the housing and nutrition requirements of the ABB and the results may shock you!

4:00pm-4:20pm Containment emergency protocols

Tad Yankoski, Sophia M. Sachs Butterfly House

Are you prepared? The Butterfly House experienced a significant quarantine “near miss” when a window was struck and badly damaged by a lawnmower. Presented at the request of USDA officials, this short presentation will outline how our emergency quarantine kit was utilized to ensure no breach of containment occurred, detail the components that we did not have at the ready that we ultimately needed, the process by which we maintained quarantine during repairs, and the changes we have made to ensure the accident is not repeated in the future. We will share the contents of our emergency kit, and outline what is recommended as best practices by the USDA to keep on hand for containment related emergencies.

4:20pm-6:00pm TITAG Meeting

Come one come all to the TITAG meeting to get update on the sustainable populations SWARM program, Saving Animals From Extinction (SAFE) programs, invertebrate welfare and other fun TITAG business.

EVENING EVENT

7:00pm - 9:00pm Black Lighting the Night Away

We will provide all the equipment for a black light sheet and mercury vapor light setup. Participants will be able to pursue moths, wasps, scorpions, tarantulas, etc!

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**Audubon
Insectarium**

Barbara Reger

Saturday, July 27

8:00am - 4:00pm Silent Auction

8:00am - 4:00pm Registration -- Registration may close during paper sessions and lunch.

8:00am - 4:00pm Please visit our Vendors

WORKSHOPS

8:30pm-11:30am Macro Photography for Everyone, Everywhere, at Every Budget

Led by Sebastian Echeverri, Xerces Society for Invertebrate Conservation - Agave Ballroom

Finally seeing an invertebrate at their own tiny scale is a dream come true—but actually taking pictures of very small animals might seem like a daunting and expensive venture. Don't worry! In this workshop, you'll learn how to take excellent photos of all the tiny life around you, no matter your budget or previous experience. We will explore all the key equipment, camera settings, and animal handling skills you need for great shots. We'll also discuss how to use your new skills in your research, social media, education/outreach programs, and more. Just bring any device capable of taking photos!

8:30am-11:30am Citizen DNA Barcode Network: Applying Hands-on DNA Barcoding Techniques with Citizen Scientists in Informal Settings Part II - Joshua Tree

Led by Jeffry Petracca, Cold Spring Harbor Laboratory DNA Learning Center

Participants must also sign up for Part I of this Workshop.

ROUNDTABLES - Presidio III,IV,V

8:30am-10:00am Insect Investigators

Led by Erin Mills, Houston Botanic Garden

In this round table, we will discuss and share ideas for outdoor, insect-related programming for youth and adults. Bring your ideas, experiences, and questions!

10:00am-11:30am The Lesson Hive is built -- Now What?

Led by Gwen Pearson, Freelancer

The Lesson Hive (<https://lessonhive.org>) is now a live, functional website full of NGSS-aligned lessons and supplemental teaching materials. The next step is to start compiling top-rated resources into topic collections. Metamorphosis, Monarchs, and Pollinators are three obvious topics; what others would you like to see? What feedback have you gotten from teachers? Help us chart the next steps in this project via a roundtable discussion.

11:30am-12:34pm LUNCH ON YOUR OWN

12:45pm- 1:00pm Welcome and Announcements - Presidio III,IV,V

PAPER SESSION: - Presidio III,IV,V

1:00pm-2:20pm Peanut Butterflies and Jellies

1:00pm-1:10pm Butterflies 2.0: Reintroducing an Audience Favorite

Hazel Davies, American Museum of Natural History

After 23 years, the butterfly vivarium at the American Museum of Natural History has moved into a new home. The move gave us an opportunity to enhance this beloved nature-focused immersive experience by introducing new technology to benefit our visitors, staff, and volunteers. Get a sneak peek at the revitalized Davis Family Butterfly Vivarium, which includes an array of new teaching tools, from updated graphics and touch models to a facilitated Dinolite microscope station and our new Field Guide app.

1:10pm-1:30pm Mooning the Public: Care and Maintenance of *Aurelia labiata*

Dylan Cebulski, Saint Louis Zoo

Cnidarians have been a staple for a while at the St. Louis Zoo Insectarium in the form of corals. However, we have recently branched out into jellyfishes. These delicate but fascinating animals can make for a wonderful public display. *Aurelia labiata*, also known as Moon Jellyfish have unique requirements sometimes difficult for a non-aquaria-centric institution. This paper aims to help others meet these challenges with confidence and elevate invertebrate displays to a new level.

1:30pm-1:40pm Dermestid Beetles and Friends: more than just biofacts

Taylee Pratt, Omaha Zoo and Aquarium

Our dermestid colony has allowed us to foster relationships with our veterinary staff, other animal crews, and our education staff. While we do use the beetles to clean specimens for biofacts; we've had the opportunity to provide a vital resource to our vets. Through cleaning different specimens, our veterinary staff has been able to get an up-close view of skeletal issues and injuries. This has provided a unique educational tool for veterinary staff and students. We've also been able to give animal care staff a piece of their beloved animals back through cleaned specimens.

1:40pm-2:00pm World of Insects

Winton Ray, Cincinnati Zoo & Botanical Garden

World of the Insect - 46 years after it opened the World of the Insect remains one of the Cincinnati Zoo & Botanical Garden's top attractions. This presentation will provide an overview of the World of the Insect's history, animal collection, programs and the humans that are the secrets to its success.

2:00pm-2:20pm Leafcutters Take Manh"Attan

Hazel Davies and Ryan Garrett American Museum of Natural History/ Leaf House Scientific

After 5 years of dreaming and design, the American Museum of Natural History opened a leafcutter exhibit of monumental scale and complexity. Our project stands as a testament to the many challenges and rewards of bringing the unseen world of ants to museum visitors. This experience has highlighted the critical importance of close collaboration between stakeholders, materials experts, designers, fabricators, and animal care staff. The unveiling sparked curiosity and wonder, inviting visitors into the meticulously crafted universe of *Atta cephalotes* and hopefully inspiring a new generation of entomophiles. But most importantly, what did the ants think?

2:20pm-2:40pm Announcements and Break - Presidio III,IV,V

PAPER SESSION: - Presidio III,IV,V

2:40pm-4:30pm Total Tarsal Takeover

2:40pm-3:00pm Buggy BioBlitz as a Tool Reconnect with Nature

Kimberly A Godfrey, The Academy of Natural Sciences/ WINS Program

The Women In Natural Sciences Program uses invertebrates like cockroaches to initiate our participants into the program, but it also represents our way of demonstrating how we can create a safe space to step out of one's comfort zone to try new things and reconnect with nature. Now, we are reaching out to neighborhood programs to engage others in our community to connect with invertebrates through BioBlitz Activities like the City Nature Challenge and more! By doing so, we hope to demonstrate that exploration of the natural world truly begins in our backyard.

3:00pm-3:20pm Insect Diversity Along the Palos Verdes Peninsula in Southern California

Michael Chao, student

Palos Verdes Peninsula, is a unique coastal environment supporting a mediterranean biome and is considered to be one of the hot spots for biodiversity. However, since human intervention there seems to have been a decrease in the biodiversity, including that of invertebrates. Hence, there are nature preserves and wild areas within the region to protect some of the wildlife. However, with the constant increase with the human population within the area there have been pressures to use the preserved lands as human settlements instead. With such in mind, I conducted an experiment detailing the difference in biodiversity of insects between wild areas and urban areas to determine whether keeping areas preserved is worth the great amount of land used. This was done by a series of insect collecting between a local park as the urban sample and a nearby reserve as the wild sample. Insects were collected through various methods including sweep netting and visual sighting. Then the specimens were identified back in the lab and then the total results were compared. At the end the urban area surprisingly had more species total, however considering the difference between the area of sample spaces, when the species per square feet was taken it found that species number was near similar with both areas and the wild area had a great number of individuals caught. Hence the results exemplified the importance of preserves and keeping native plants.

3:20pm-3:40pm There's Gold (er, Chrysos) in Them Thare Hills

John Watts, Texas Discovery Gardens

The leaf beetles (*Chrysomelidae*) are the second largest family of beetles worldwide and the Sonoran Desert has a high diversity of species represented. This talk will introduce you to the various subfamilies and genera that live in southeast Arizona and their diverse niches in this extraordinary region. Although most species are small, they can be brilliantly colored and exhibit great potential as teachers of many ecological concepts including crypsis, aposematism, mimicry, predator avoidance, and even commensalism. Be prepared to be awestruck by this glorious group of beetles.

3:40pm-3:50pm Effects of different insect diets on *Aphonopelma seemanni* growth

Zach Kaminski, West Liberty University

Costa Rican Zebra Tarantulas (*Aphonopelma seemanni*) were used to compare the dietary impacts of growth on tarantulas. Quicker growth may mean quicker reproduction which decreases the need for wild-caught specimens in scientific studies and arachnoculture. 8 juvenile *A. seemanni* were split into 4 pairs, each fed an equal mass of crickets, mealworms, dubia roaches, or a rotation between all 3. Growth was tracked through tarantula weights and molting frequency. After 12 months, the slings fed exclusively mealworms were visually obese, being on average 74% heavier than the other three pairs. Crickets had the longest mean duration between molts.

3:50pm-4:10pm Butterfly Longevity Study: Tracking lifespans and increasing visitor engagement

Nicole Pruess, Sophia M. Sachs Butterfly House

The Butterfly House entomology team started a longevity study in August 2023 and have tagged over 1000 butterflies so far to track their lifespan. This ongoing project involves staff, volunteers, and visitors observing tagged butterflies to create a dataset. The study aims to compare captive and wild lifespans, informing optimal animal care and plant selection. Visitor engagement enhances data collection, with thousands of observations and enthusiastic participation in the scientific scavenger hunt. Preliminary results show interesting trends and showcase the study's educational and interactive impact. The study has increased visitor interest in butterflies and provides insight for exhibits and husbandry.

4:10pm-4:20pm Scorpion Behavior Assessments: Taking the Sting Out of Behavioral Interpretation

Marissa Harrison, Thanksgiving Point Butterfly Biosphere

When our team shared conflicting impressions of scorpion behavior during their use as animal ambassadors for a Halloween event, we decided our understanding of each scorpion's temperament was insufficient to determine if their behaviors during and after the event were abnormal. We initiated a Scorpion Behavior Assessment to provide a baseline for future comparison. Our team jointly reviews a scorpion's feeding habits and behavior records, and then walks it through a series of interactions to assess typical locomotion speed, defensive behavior tendencies, reaction to touch stimuli, and recovery post stimulus. Meet our scorpions and their wonderful and varied personalities!

BANQUET - Presidio III,IV,V

5:30pm – 10:00pm Final Silent Auction bids, Cash Bar and Banquet

TITAG SILENT AUCTION

Each year, TITAG organizes the silent auction at the IECC. If you can, please bring any invertebrate related item with a value of under \$50 to put on the auction table. If you have something of a higher value you would like to donate please contact Erin in advance (erin.sullivan@zoo.org). Bidding will start on Thursday and end Saturday at 4pm with a final bidding war starting at 6pm just before dinner on Saturday evening. The proceeds go towards the TITAG Small Grants Program and the Steve Prchal Scholarship Fund. We appreciate every contribution to these important programs

FREE ADMISSION TO LOCAL ATTRACTIONS

The following organizations have generously agreed to offer free admission to IECC participants, just show you conference ID badge:

- [Butterfly Wonderland](#)
- [The Phoenix Zoo](#)
- [Reid Park Zoo](#)
- [Sonoran Desert Museum](#)
- [Tohono Chul](#)
- [Tucson Botanical Garden](#)

ABOUT COLLECTING

It is your personal responsibility to comply with state and federal regulations if you plan to collect while in Arizona. If you plan to collect in Mexico, contact USDA well in advance. Bringing live or dead specimens across international borders without proper permits is illegal. You should always carry your conference badge with you as proof that you are part of the conference, as well as your own personal identification.

The conference is moving towards encouraging facilities to maintain sustainable collection in captivity to minimize the impact collecting has on the environment. If you choose to collect, please practice responsible collecting procedures and make proper arrangements to transport your live animals. Keep in mind that collecting is at the discretion of any trip leader based on prevailing conditions (if allowed at all). Please observe the following guidelines: 20

- When in the field, do not harass snakes or any other species. Remember that collecting vertebrates is strictly controlled and requires permits.
- Please practice respectful collecting etiquette. This includes but is not limited to returning rocks, logs, cow patties, etc. to the position in which you found them; treading lightly when not on established paths; asking permission to collect at other people's black light sheets and taking responsibility for keeping live animals cool when in the field.
- Some collecting sites (Madera Canyon, etc.) are more sensitive than others and may require additional communication with local stakeholders.
- Exploring the resort grounds is highly encouraged, native arthropods should be photographed and not collected.
- If you see people engaged in disrespectful or illegal collecting, please notify a leader or conference organizer, or address the behavior yourself. If someone needs information about a collecting practice, please provide it if possible or direct them to a trip leader.
- Dogs are not allowed at any conference event.

KEEPING COOL

- Keeping Cool Getting too hot in the desert is no fun and is potentially dangerous. Here are some helpful hints for staying cool and enjoying your time in Southern Arizona

- Wear loose-fitting, lightweight and light-colored clothing.
 - Drink plenty of fluids before, during, and after heat exposure.
 - Wear a wide-brimmed hat.
 - Wear sunscreen (30 spf or greater recommended).
 - Drink lots of water throughout the day. Beverages with electrolytes may also be helpful. If you experience any symptoms of heat exhaustion, stop any physical activity immediately, let someone know what is happening and find a place to cool down. Symptoms can include: headache, excessive thirst, nausea or vomiting, weakness, faintness, dizziness, confusion, or lethargy.
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