Plenary Session

Scientists at Work: The Science Practices in Their Natural Habitat
Dr. Lauren Esposito
Schlinger Curator of Arachnology

@CAS_Arachnology
IG: Arachnerds
lesposito@calacademy.org
Arachnid Biodiversity and Evolution

• Global Arachnid Biodiversity
• Biomechanics of Flat Spiders
• Spider Adaptation to Aquatic Life
• Evolutionary Relationships of Mites
• Historical Patterns of Distribution
• Evolution of Scorpions and Their Venoms
Evolution of Scorpions and Their Venoms
Planning and carrying out investigations

Fieldwork (CAS & AMNH Teams)

Generation of

Anchored Hybrid Enrichment Data (AMNH Team)

Phylogenomics (AMNH Team)

Venome Assembly & Analysis (CAS Team)

Biochemical Characterization of Venomic Data (Hunter Team)

Comparative Phylogenomic Analyses and Hypothesis Testing of Data (All)

Writing and Publication of Findings (All)

Proteomic Analysis of Venom Glands (Hunter Team)

Transcriptome Data (CAS Team)
Inferring Function from Structure

DISCUSS: What information would you need to know about how this is used to figure out what it does?
Inferring Function from Structure
Thank You

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Southern Grasshopper Mouse
Onychomys torridus

Arizona Bark Scorpion
Centruroides sculpturatus
Alexis Shusterman
UC Berkeley, Cohen Lab
@aashuste
shusterman.alexis@berkeley.edu

photo by Michael Wan
Understanding air quality & climate change

• Where do air pollutants come from?
• How do pollutants move through and collect in urban areas?
• What chemical reactions control the fate of those air pollutants?
Developing and Using Models

May 18, 2013 2:20:00 PM

animation by Garima Raheja
Activity: Be a Weather Model!

- Stand up if your number is > 80.
- Move the model forward!
  - if < 50, add 3 and pass left
  - if ≥ 50, add 6 and pass left
- Repeat 6 times.
- Stand up if your number is > 80.
painting by Stephen Conlin
Evaluating and Improving Models

May 18, 2013 2:20:00 PM

Lawrence Berkeley National Lab (Berkeley, CA)

May 18, 2017
May 21, 2017
Thank You!
Anna McGaraghan
Kudela Biological and Satellite
Oceanography Lab
UCSC
anna.mcgaraghan@gmail.com
What causes Harmful Algal Blooms (HABs)?

How can we better predict, detect, and mitigate HABs?

What new tools help answer these questions?
NGSS Practice 7:
Engaging in Argument from Evidence

NGSS Practice 8:
Obtaining, Evaluating, and Communicating Information
Sometimes I’m stumped.

This is a Pointy Oval Ball
Sometimes I’m stumped.

This is a Pointy Oval Ball
Sometimes I’m stumped.

POB is also on Facebook.
Unsolved Mystery
Ridges too sharp

"Feet" too short

Two cells

Flat instead of domed