Research & Collections Newsletter

Fall 2017

re•search (ri-sûrch′, rē′sûrch) n. **1.** Scholarly or scientific investigation or inquiry. See synonyms at *inquiry*. **2.** Close, careful study. **3.** When performed on collections, the *raison d'être* of all great natural history museums.

Collection News

Stephanie Abramowicz raises the flag of the State's new official dinosaur — Augustynolophus morrisi.

Anthropology

New Aquisitions

Anthropology accepted a donation of 42 historic photographs from the 1940s in Colombia. These photographs were taken by the sibling donors' father while he was stationed in Colombia to look for oil during WWII. The images show his interactions with the natives of the area, the Guahibo. The donor's father was clearly fascinated with how the Guahibo fish using a bow and arrow. There are similar bows and arrows in the Ethnology collections but sometimes it takes a photo to really appreciate how they would have looked in action.

A Guahibo man "fishing" with bow and arrow.

Anthropology also received a beautiful copy of *Trajes Regionales Mexicanos* by Guatemalan artist Carlos Mérida. This book was originally collected by Richard Hopper, a costume designer who used it as a reference, but the collection of colored prints also represents an important preservation of Mexico's regional attire. Carlos Mérida was interested in dance as well, so even the postures of the people depicted document some of the positions held when doing certain regional dances.

One of the silk screened prints included in Trajes Regionales Mexicanos *by Carlos Merida.*

Research for Tattoo

On August 31st, anthropologist Dr. Lars Krutak visited NHM to meet with the Exhibits team and to look at items being considered as additions to the upcoming *Tattoo* exhibit. Dr. Krutak is a Research Associate with the National Museum of Natural History in Washington D.C. and has done extensive research on the tattoo and body modification traditions of indigenous cultures throughout the world. He offered invaluable insight into how the tattoos and scars represented on the objects would have been understood by the people who made them. This information will certainly enhance how we interpret these objects for the public once the exhibit opens.

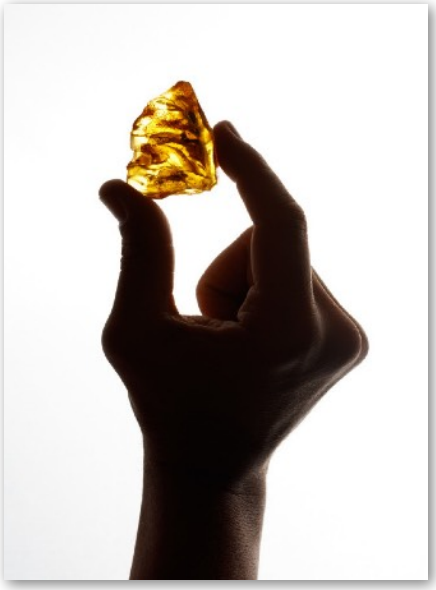
While looking at items in the Ethnology storeroom Dr. Krutak also shed light on the stories behind a few other items in the collection. He recognized a very large gable mask as being similar to one he'd seen during his field research among the Kaningara tribe of Papua New Guinea. Very little information about the intended use of this mask came with the donation, and without anyone on staff that specializes in New Guinean cultures, the massive item remained a bit of a mystery. That's why it was a true gift to receive a link the next day to a chapter from his 2012 book *Magical Tattoos and Scarification: Spiritual Skin* (http://www.larskrutak.com/making-boys-into-men-the-skin-cutting-ritual-of-the-kaningara-tribe-of-papua-new-guinea/) because not only does it offer a fantastic account of the Kaningara tribe's scarring ritual, it includes pictures of a gable mask in situ, "swallowing" initiates as they enter the Spirit House.

Photo taken by Lars Krutak showing a gable mask at the entrance to the Spirit House.

A similar looking gable mask from the Anthropology collections resting in the Ethnology storeroom.

Entomology

Buckets of amber



Brian Brown gave a talk at Trustee Greg Martin's home in Beverly Hills about amber and the recent donation of two buckets of unsorted amber fossils by Nancy Oschin this year. Twenty-nine people were present, as well as Advancement staff Tom Jacobson, Al Vasquez, and Christina Rosales. It was especially nice that Nancy Oschin herself made the trip up to Los Angeles to attend.

History

Carl Laemmle Presents

To commemorate the 150th anniversary of the birth of Universal Studio's founder Carl Laemmle, the Haus der Geschichte Baden-Wurttemberg (the History Museum of the Baden-Wurttemberg State) in Stuttgart produced a temporary exhibit from December 9, 2016 until July 30, 2017.

Lenders from all over the world were brought together in the exhibit, with the Natural History Museum's contribution of 44 objects making our institution the single largest lender by far — and the most popular. Along with an Oscar statuette loaned by the Academy of Motion Picture Arts and Sciences, the prop bat from *Dracula* (1931) and actor Lon Chaney's makeup kit were the most popular artifacts in the show.

Among the 44 items the History Department loaned was a prop side of beef from the World War I film, *All Quiet on the Western Front*. The English label translation read: "Piece of Flesh".

As a result of the exhibit, the local museum in the nearby town of Laupheim, Laemmle's birthplace, is renovating their permanent Laemmle display with the assistance of the Stuttgart curatorial team. The History Department was asked by the Laupheim museum if photographs of each page of Laemmle's *Book of Friends* could be taken to

create a virtual copy of this autograph book to be placed on exhibit in the newly renovated display.

Pictured is the prop side of beef on exhibit.

Many Voices, One Nation

Dr. William Estrada, Curator of History, attended the June opening of the Smithsonian's National Museum of American History's new permanent exhibition, *Many Voices, One Nation,* in Washington, D.C. The exhibition explores the contributions of immigrants to American history and culture. *Many Voices, One Nation* is one of three new exhibitions located on the second floor of the museum's West Wing centered on the unifying theme "The Nation We Build Together."

NHM's La Esperanza Bakery neon sign became the signature artifact to help personalize the story as Los Angeles became an obvious choice to convey the overall role of immigration in California. The bakery was founded in 1918 by Ezequiel Moreno, an immigrant from Mexico. The bakery was selected for the exhibit because of its strategic location in the heart of Downtown Los Angeles and its diverse customer base which was a cross section of the entire community for more than sixty years.

Invertebrate Paleontology

Invertebrate Paleontology continues to make progress on two National Science Foundation grants to improve collection conservation and accessibility. The EPICC (Eastern Pacific Invertebrates Communities of the Cenozoic) project has involved more than 3,000 hours of student intern and volunteer effort, with nearly 650,000 specimens catalogued and 10,000 digital images captured. A collections improvement grant is enabling digitization of our massive Cretaceous collections, development of the "Cretaceous Seas of California" outreach initiative, and allowed for curation of a donated collection of significant research value.

Invertebrate Paleontology staff and students working on digitization activities.

La Brea Tar Pits

Art & Science

The Fossil Lab collaborated with LACMA and the South American art collective *Mapa Teatro* to produce an art exhibit for this year's *Pacific Standard Time: LA/LA.* The artists filmed Tar Pits staff and volunteers "preparing" and "researching" artifacts from LACMA's Bing Theatre, which is slated to be razed when LACMA undergoes their next renovation. The exhibit can be seen in LACMA's Broad Contemporary Art Museum (BCAM) building through January 2018, and the film will be screened in the Bing Theater every other Saturday at 4:00pm through February 17th. http://www.lacma.org/event/project-24-0

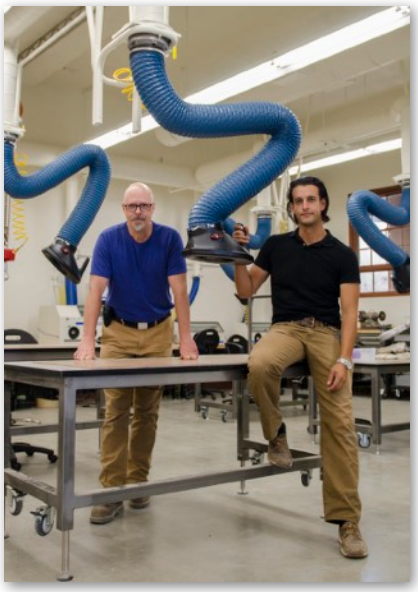
The Rancho La Brea collections have been busy over the summer with visiting researchers from near and far. Damian Ruiz-Ramoni from the Instituto de Geologia of the Universidad Nacional Autonoma de Mexico worked in the dire wolf collection on a project comparing North American and South American Pleistocene wolves. Jose Luis Prado 'Pepe' from the Dept. de Arqueología at UNICEN in Buenos Aires, is working on a histology project involving *Equus* and has now requested a number of metapodial samples to be sectioned back in Argentina. Graduate student Ashley Reynolds from the University of Toronto has also been working on a histology project looking at growth rates in *Smilodon fatalis*. Graduate student Nathaniel Fox from the University of California in Merced visited as part of his regular work with the collections for his dissertation partly funded by an NSF grant looking at small mammal distribution and diets from Project 23. Graduate student Jessie George has ramped up her collections work on our botany specimens as she heads into her second year of Ph.D. study in the Geography Department at UCLA; she is examining seeds and wood from Pit 91 and the early Hancock Collection. Larisa DeSantis from Vanderbilt University came for her annual visit to La Brea to sample carnivore teeth as part of a large dietary study that she has been conducting for many years. Local students from Cal Poly Pomona have been working in the collections examining canid, equid and bovid limb bones as part of a larger study with Dr. Donald Prothero. Borja Figueirido from the University of Malaga in Spain has started a project to surface scan the vertebral column of *Smilodon fatalis*.

La Brea Tar Pits & Vertebrate Paleontology

Metro Mammoth Collaboration!

Staff from the La Brea Tar Pits (Stephany Potze, Beau Campbell) and Vertebrate Paleontology (Alan Zdinak) collaborated with Cogstone (Kim Scott, Ashley Leger, Bethany Rose) to create a storage housing for Hayden the "Metro mammoth". With the plaster, fiberglass, and polyethylene foam jacket in place, preparation can begin on the skull's dorsal side. The jacketing work was done inside the Fossil Lab at the La Brea Tar Pits, which can be viewed by the public in the exhibition area, thereby allowing visitors to the museum another perspective on what paleontological lab work entails. Hayden is the nickname of the juvenile mammoth (*Mammuthus columbi*) uncovered during the Metro subway station excavations, 15 ft underground, at Wilshire Boulevard and La Brea Avenue. Hayden roamed around Los Angeles during the late Pleistocene. Once preparation is complete (and the subway project is finished) the second half of the "clamshell" jacket will be made and Hayden will head for his new home in the VP collections.

Bethany Rose and Beau Campbell trim excess fiberglass and plaster off the storage jacket.

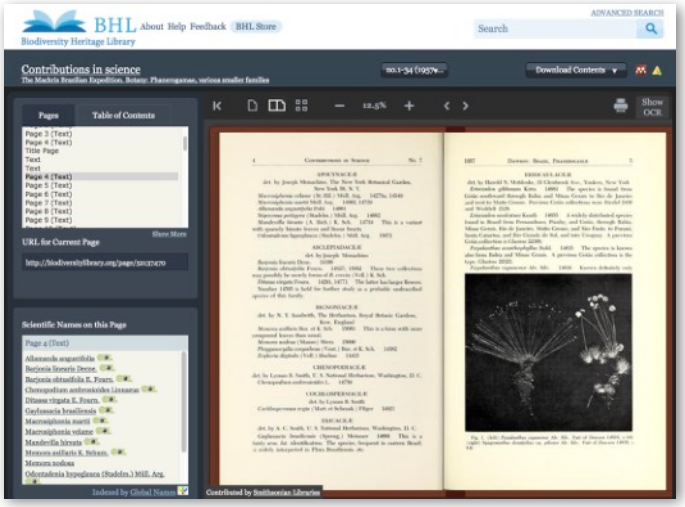


Vertebrate Paleontology & Dinosaur Institute

The gut renovation on the 4th floor Fossil Preparation Laboratory wrapped up in August and the new lab is open for business. Preparators Alan Zdinak (VP) and Jose Soler (DI) polled colleagues from around the globe (and down the hall) to design a state-of-the-art workspace aimed at maximizing flexibility and increasing productivity. Highlights include a suite of mobile, hydraulic work benches, self-supporting dust collection arms, new air abrasion units, new cabinetry, new office spaces, and new and improved lighting and HVAC. Thanks goes out to the General Services, Finance, Operations, Maintenance and Construction Services, and United teams for getting the job done. Thanks also to vendors Comco, Inc. and Air Filtration Resources for materials donations. And special thanks to the R&C and museum leadership for making this possible!

Alan Zdinak and Jose Soler

Research Library



NHM's peer-reviewed journal *Contributions in Science* is now searchable by title and author through the Biodiversity Heritage Library platform. The entire set of articles in the journal were digitized by the Smithsonian Libraries under the IMLS grant "Expanding Access to Biodiversity Literature" and were uploaded to the BHL portal. National Digital Stewardship Resident Marissa Kings led an effort to provide article level metadata for the journal so that each individual article is defined and searchable in BHL. Researchers can additionally search by scientific names indexed through the Global Names Architecture and linking out to entries in the *Encyclopedia of Life*. BHL plans to launch a full text search in early 2018. In addition to accessing *Contributions in Science* from NHM's publications page, it can be accessed via BHL at http://www.biodiversitylibrary.org/bibliography/122696#/summary.

Field Work

Dinosaur Institute

2017 Fieldwork in New Mexico

The New Mexico crew worked to remove additional cervical vertebrae of a Late Cretaceous titanosaur as well as the articulated skull and ribs of an unknown carnivorous dinosaur. Crews from Utah closed out their field season with a stop in NM to assist with the removal and transport of many large plaster jackets to the NHM.

Senior VP Luis Chiappe removes fossil matrix in New Mexico.

Carnivore locality.

2017 Haaga Dinosaur Expedition in the Late Jurassic Morrison Formation of Utah

Dr. Fernando Escaso Santos, a faculty member of the National Distance Education University, Madrid, Spain, delicately removes matrix from a newly extracted sauropod limb bone. Fernando has joined the Dinosaur Institute since the bone beds' discovery in 2007. Follow the link for more news from this year's field season: https://nhm.org/site/research-collections/news/digging-dinosaurs

2017 Nevada Fieldwork

Martin Sander, Doug Goodreau, and a crew from University of Bonn and University of Bremen (Dr. Jens Lehman, ammonite specialist) spent three weeks in August in Nevada. They were prospecting and excavating Middle Triassic (244 MYA) marine reptiles, including ichthyosaurs, in the remote Augusta Mountains of Nevada. Despite over 25 years of fieldwork, new and exciting finds are being made.

Dr. Martin Sander accepts a much appreciated donation from The Great Basin Brewery.

Dino Lab preparator Doug Goodreau carefully breaks apart fossils of a new, very primitive, marine reptile.

Ghost Ranch Fieldwork

Nate Smith and Hank Woolley traveled to Ghost Ranch, New Mexico, from July 27–August 8 as part of a collaborative NSF project collecting Late Triassic vertebrates in the Hayden Quarries. Highlights included the collection of several articulated dinosaur skeletons, and multiple phytosaur skulls, as well as a visit by "Weird" Al Yankovic and family.

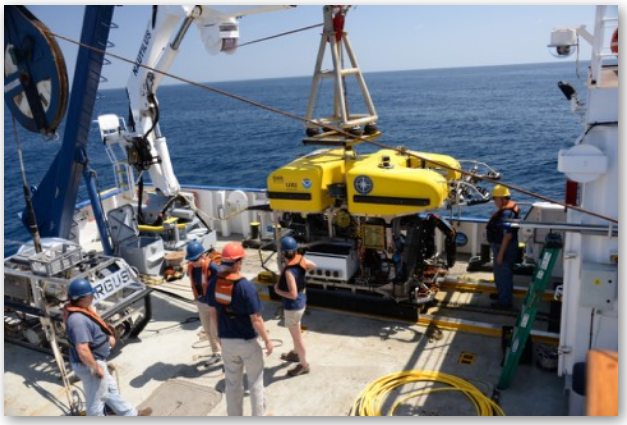
Ghost Ranch Crew.

Late Triassic sediments at Ghost Ranch, NM.

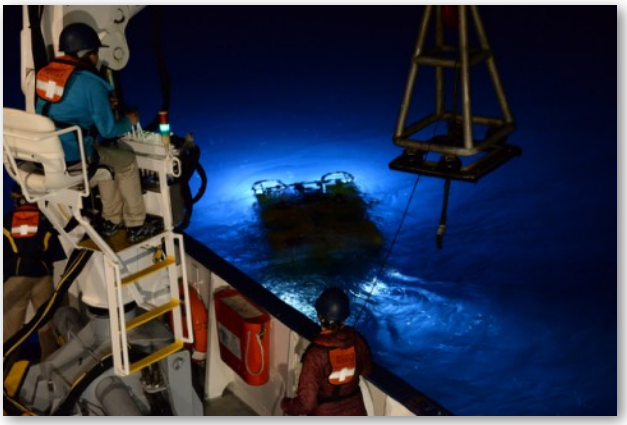
DISCO

E/V Nautilus

As part of its collaboration with Dr. Robert Ballard's Ocean Exploration Trust (OET), Dean Pentcheff of NHM's DISCO program was at sea on the exploration vessel *Nautilus* from July 20–23. This remarkable operation runs remotely operated vehicles (ROVs) from the vessel, using video and collecting exquipment to explore the ocean. This particular cruise focussed on the Channel Islands, working primarily in shallow water (down to a few hundred meters), exploring drowned marine terraces that were once beaches when the ocean's surface was lower than today. DISCO's staff are benefitting from difficult-to-find specimens, and the OET is benefitting from scientific commentary and taxonomic expertise.



A view of the E/V Nautilus fantail, with the two main ROVs in a rare moment of rest.



Night launch of the ROVs.

Invertebrate Paleontology

Austin Hendy, Katy Estes-Smargiassi, and Javaria Aziz (Invertebrate Paleontology) led a fieldtrip for more than 30 participants from the Southern California Paleontological Society to fossiliferous sites near Carpinteria and Santa Barbara.

Jorge Velez-Juarbe (Marine Mammals), Austin Hendy, and Lindsay Walker (Invertebrate Paleontology) continued fieldwork at the More Mesa/Hope Ranch site near Santa Barbara. This Plio-Pleistocene age site (1–2 million years old) is being studied to more fully document its biodiversity and paleoenvironmental significance, and is supporting independent research by student intern Trevor Dalton (California State University Dominguez Hills).

Spectacular exposures of poorly reported early Pleistocene age invertebrates and vertebrates west of Santa Barbara.

La Brea Tar Pits

Emily Lindsey travelled to two Quaternary localities in Texas, Friesenhahn Cave and Hall's Cave

Malacology

In August, Jann Vendetti, former NHMLA Malacology curator Ángel Valdés, and two students from Cal Poly Pomona, found *Vayssierea felis*, an enigmatic nudibranch, among biofouling organisms on a floating dock in Redondo Beach, near a locality where the Marine Biodiversity Center had collected it in 2010 and 2016. This species is now the basis of a research project investigating its source population and status as introduced species.

Vayssierea felis.

Polychaetes

3 weeks, 3500+ samples, 1000+ species

Leslie Harris was an invited scientist in the Hakai Bioblitz co-sponsored by Hakai Institute and the Smithsonian's Marine Geo program. The bioblitz took place at Hakai's research station on remote Calvert Island, about 60 miles north of Vancouver Island in Queen Charlotte Sound. From July 20th to August 11th, 46 museum and university taxonomists and ecologists from Japan, the U.S., and Canada joined forces to document the invertebrate, fish, and algae species around the island. Over 3,500 samples and 1,000+ species, representing about one-third of the known Pacific Northwest invertebrate fauna, were collected. Approximately 1,000 of those samples, mostly polychaetes, but also crustaceans and others, will be deposited here as a result of Leslie's participation. Tissue samples taken from most of the organisms brought back to the lab will be barcoded in the coming months by Hakai's partners at the University of Guelph's Barcode of Life Project. All of the information about the species documented (photos, taxonomy, DNA, and geospatial metadata) will be hosted on a collection of open-access databases. The DNA barcodes will be put to use soon during upcoming analysis of metabarcoding data from the ARMS (autonomous reef monitoring structures), all 12 of which were successfully processed during the BioBlitz. Finally, a treasure-trove of beautiful imagery was captured, which is one of the immediately recognizable legacies of the event that captivated social media and will be used for years to come in identification and inspiration. Three social media specialists were on hand to document the survey, resulting in 3 blogs — one featuring Leslie and her love of worms — and many tweets.

https://www.hakai.org/blog/life-at-hakai/BioBlitz-Species-Never-Met
https://rosswhippo.com/2017/08/05/an-arms-load-of-critters/
https://www.hakai.org/blog/life-at-hakai/long-ones-short-ones-fat-ones-skinny-ones-itsy-bitsy-polychaete-worms

Daily tweets with lots of invert photos can be found at:

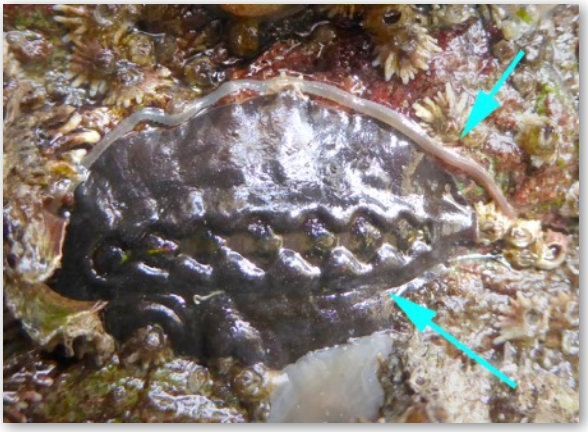
https://twitter.com/HakaiInstitute
https://twitter.com/search?src=typd&q=marinegeo

Hakai boat dock and Pruth channel.

1000+ samples ready to come to the museum.

Worms, worms, worms

In July, Leslie Harris spent two weeks at Friday Harbor Marine Laboratories assisting Dr. Gustav Paulay (Florida Museum of Natural History) with FHL's summer *Marine Invertebrates* course and finding polychaetes for this museum's DISCO project. The samples supplement our world-class worm collection, as well as provide material for a comparison of northern (Washington and British Columbia) and southern (California) Pacific coast species. Although the same taxa are reported from both areas, it turns out that many undescribed species are misidentified as known ones, leading to underestimates of the local fauna. Some new species were found, and one fascinating symbiotic relationship between a syllid polychaete that steals food from a chiton (second photo, upper arrow worm, lower arrow chiton).



Sun, sea, sand, and worms.

UNRC

Compton Creek Scouting Trip

Lila Higgins, Miguel Ordeñana, and Richard Smart joined staff from Heal the Bay on July 19 to assess sites along Compton Creek for a Citizen Science Meet Up that will take place on August 26.

Coqui Frog Fieldwork

This summer has had a surprising amount of Coqui Frog activity. These nonnative frogs are showing up with increasing frequency in Southern California, often to the great distress of unsuspecting homeowners who lose sleep while the male frogs call loudly throughout the night from their or a neighbor's yard.

On August 15, Greg Pauly led a group of 15 people to collect nonnative Coqui Frogs at a nursery in Torrance. The group included Estella Hernandez, Miguel Ordeñana, Riley Williams, Kelsey Ziff, and Katie McKissick along with six volunteers and three biologists from the CA Department of Fish and Wildlife (CDFW). In just over two hours, the group collected 210 frogs!

Greg also documented Coqui Frogs at private residences in Tustin (July 8), Manhattan Beach (July 27), Pacific Palisades (August 1), and San Pedro (September 12). He is continuing to work with CDFW in documenting these introductions and implementing new policies to reduce the likelihood that this species becomes established in Southern California.

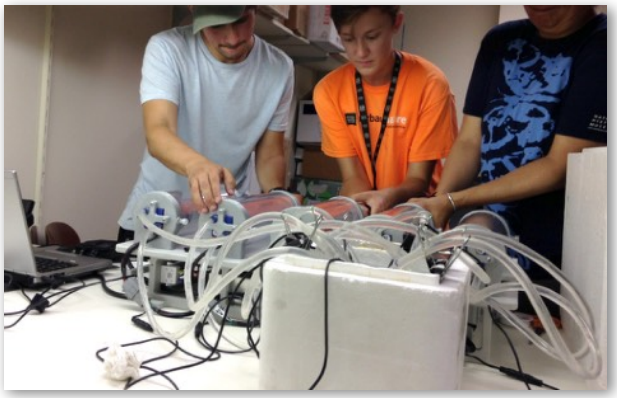
To read more about the Coqui invasion and/or watch a video of Greg talking about these frogs, check out Katie McKissick's recent blog: http://nhm.org/nature/blog/loudest-frogs-around

A male Coqui Frog observed at a nursery in Torrance. These frogs are considered a "restricted species" by the California Department of Fish and Wildlife.

Italian Wall Lizard Fieldwork

Cal Poly San Luis Obispo graduate student Daniel Haro joined Greg Pauly and UNRC seasonal field tech Riley Williams to collect Italian Wall Lizards in Coastal San Pedro on July 19. Danny, his advisor Heather Liwanag, and Greg are collaborating to study the evolution of physiological tolerances in Italian Wall Lizards introduced to San Pedro and to Long Island, NY. The 20 lizards they captured are now housed in the animal care facility at Cal Poly and will be a critical component of Danny's Masters Thesis research.

Danny returned to the Museum August 22–24 for additional studies of Italian Wall Lizards. Danny set up a testing chamber to study thermal tolerances of these lizards. On August 23, Danny, Greg Pauly, Neftali Camacho, Estella Hernandez, Jane Li, Bree Putman, Riley Williams, and NHM volunteer Carlos Juaregui all headed to Coastal San Pedro to catch lizards to use in these trials. They returned to the museum and completed the tests through the late afternoon and evening with some additional field and lab work on August 24.



Daniel Haro, Riley Williams, and Estella Hernandez testing the thermal tolerances of Italian wall lizards.

Studies of Nonnative Geckos and Anoles

Greg Pauly and Riley Williams traveled to Orange and Santa Ana on July 24 to collect nonnative lizards. The work in Orange involved collecting Brown Anoles during the afternoon and Indo-Pacific Geckos at night for studies examining the reproductive biology of these tropical species that are now established and thriving in a Mediterranean climate. Later in the evening, they headed to Santa Ana to document the spread of nonnative species that are now established and expanding due to insufficient biosecurity protocols at a major reptile importer/distributor facility. More broadly, both studies are focused on understanding the roles of the nursery plant trade and pet trade in introducing invasive species into Southern California.

SuperProject Plus Field Work (July 18, July 19, and July 25)

Miguel Ordeñana joined Lisa Gonzalez and Jann Kempf to deploy bat detectors and camera traps in SuperProject Plus backyards. Lisa and Jann collected spider and BioSCAN data.

Vertebrate Paleontology

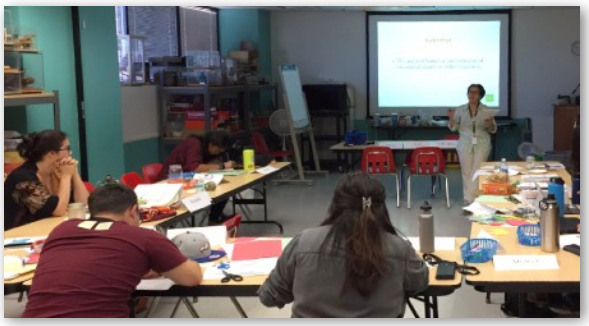
Assistant Collections Manager of Vertebrate Paleontology Vanessa Rhue was invited by the National Parks Service (NPS) and United States Geological Survey (USGS) to evaluate a fossil sirenian specimen discovered on Santa Rosa Island by Scott Minor (USGS) and Kevin Schmidt (USGS). The reconnaissance visit took place on Friday 21 July 2017. Vertebrate Paleontology volunteer and Biology graduate student Hanna Baek also joined the field party. Upon closer examination of the fossil material exposed in the late Oligocene/early Miocene boundary, it was determined that the locality establishes a new geostratigraphic record and taxonomic occurrence in the North Pacific.

Team photo taken at Bechers Bay Pier. Back row, left to right: Kevin Schmidt, Andy Cyr; Front row, left to right: Colin Cronkite-Ratcliff, Paula Power, Jonathan Hoffman, Scott Minor, Vanessa Rhue, Jessica Welch, Hanna Baek.

Vertebrate Paleontology volunteer Hanna Baek (left) and USGS Research Geologist Andy Cyr (right) stand near the exposure of a fossil sirenian skeleton on Santa Rosa Island.

Meetings, Workshops, and Presentations

Citizen Science Program



Adventures in Nature staff training

On June 16, Richard Smart and Maiz Connolly trained 12 NHMLA summer camp staff on citizen science at the Museum. Tips were shared on how to engage youth in citizen science.

Digging Deeper

August 12, Miguel Ordeñana trained the La Brea Tar Pits docents about why pumas survived the Ice Age and their current status in present day Los Angeles.

LAUSD Principals' Meeting

On September 13 Lila Higgins gave a presentation to over 100 LAUSD principals, supervisors, and board members about the Citizen Science Program's involvement in the LAUSD bioblitz in Local District Northwest. Beth Pratt-Bergstorm (Director, National Wildlife Federation) and Michael Beiersdorf (K-12 STEAM Coordinator) also presented.

LAUSD Teacher Training

On September 11, Lila Higgins, Miguel Ordeñana, Maiz Connolly, and Richard Smart trained about 40 teachers who work in LAUSD Local District Northwest on how to use the iNaturalist mobile app. Teachers will conduct bioblitz events on their own campuses the week of Oct 9–13 as part of Urban Wildlife Week and P-22 Day. 72 observations of 22 species were made.

Local District Northwest LAUSD Teacher iNaturalist Training, June 15

Lila Higgins and Miguel Ordeñana gave a training for 18 LAUSD teachers on how to use iNaturalist.

Western Society of Malacology iNaturalist Training

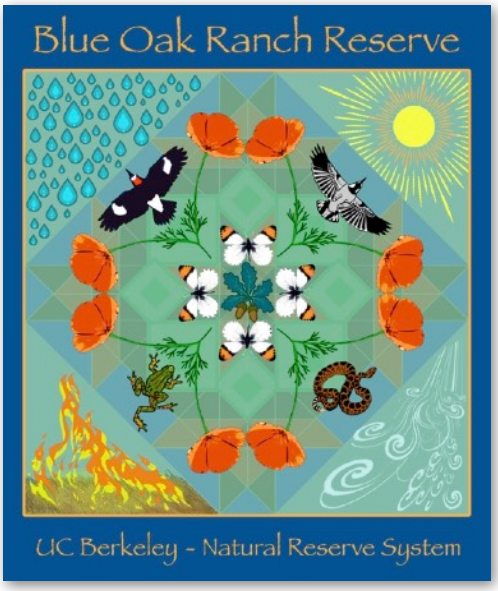
On June 20, Miguel Ordeñana and Maiz Connolly gave a presentation to 40 Malacology Society members on how NHMLA uses iNaturalist, with a focus on Jann Vendetti's SLIME project.

Dinosaur Institute

Nate Smith gave a short digitization and 3D printing demo to two teachers from Cal State Dominguez Hills as part of a program supported by the Invertebrate Paleontology department. He also traveled to Washington, DC June 16th–23rd to participate in an NSF-sponsored panel on Antarctic Dinosaurs at the Awesome Con festival on June 17th.

DISCO

UC Conservation Genomics Consortium



The DISCO program was invited to present at the workshop for the UC Conservation Genomics Consortium, held on August 15–17 at the Blue Oak Ranch Reserve, near San Jose. The Conservation Genomics Consortium is a UC system-funded initiative involving a broad range of genomics researchers from multiple campuses, focusing on applying genomic approaches on conservation issues. The DISCO program's involvement with DNA barcoding and environmental DNA in the near-shore marine and vernal pool aquatic environments is an area that falls directly into the Consortium's field of interest. As it turns out, the taxonomic and specimen orientation that comes with museum science is a welcome contribution to the Consortium's planning and projects.

History

Mostly Lost

How can anyone resist a conference titled "Mostly Lost"?

For the second consecutive year, History Department Collections Manager Beth Werling received funding from local prop house *History for Hire* to attend the Library of Congress' annual workshop on film identification. Like most archives, the LOC has a plethora of under-identified or unidentified films. Although many are silent features or shorts, others are travelogues, documentaries, and even cartoons. Participants are encouraged to shout out thoughts about who the stars are, where the film was shot — in short, anything that can help further identify the film.

Many of the films shot in Los Angeles can be recognized first by the vegetation—palm trees, pepper trees, and *Eucalyptus* along with the ridge lines of mountains. These early films also document the built environment of Los Angeles that has already disappeared; they make one look at Los Angeles through a different lens.

While there, Beth Werling also had the opportunity to meet with David Pierce, the newly appointed Assistant Chief of the Library's National Audio-Visual Conservation Center. Mr. Pierce is the co-author of the book *Dawn of Technicolor,* which utilized the Seaver Center's film frame collection. He also co-authored, with James Layton, Manager of the Film Preservation Center at the Museum of Modern Art, a book on the *King of Jazz,* an early Universal Technicolor film. The History Department has props from the *King of Jazz,* some of which were recently conserved and loaned to the "Carl Laemmle Presents" exhibit in Stuttgart, Germany.

Trachipterus altivelis *juvenile at Santa Catalina Island, April 2013. Photo by Kaia Joye Moyer.*

Ichthyology

On July 15th Rick Feeney gave a talk at the annual meeting of the American Society of Ichthyologists and Herpetologists in Austin, TX, entitled "Unusual occurrence of Ribbonfish (*Trachipterus altivelis*) juveniles near Santa Catalina Island, California, during the winter of 2013", co-authored by Milton Love, Taylor Sakmar, William Steinriede, and Kaia Joye Moyer.

Invertebrate Paleontology

Invertebrate Paleontology traveled to several meetings this summer. In July, Jann Vendetti, and Austin Hendy travelled to Newark, Delaware for the iDigBio workshop "Digitizing the 2nd largest Invertebrate Phylum: Mollusks," and Austin visited the Paleobiology collections at the Smithsonian Institution in Washington, D.C. after the meeting. Also in July, Katy Estes-Smargiassi traveled with Margarete Villalobos from School and Teacher Programs to Albuquerque, New Mexico, for the National Association of Geoscience Teachers Earth Educators Rendezvous, and Katy visited the Ghost Ranch Museum of Paleontology in Albuquerque, NM after the meeting. In September, Austin attended the EPICC TCN annual meeting in Fairbanks, Alaska, to meet with grant partners, inspect collections, and explore the wildlife of Denali National Park.

Katy Estes-Smargiassi presenting on Project Paleo: Marine Fossils of Southern California at the Rendezvous Earth Educators conference in Albuquerque, New Mexico.

Malacology

In June, Jann Vendetti (with the help of David Bottjer, USC) hosted the 50th meeting of the Western Society of Malacologists at USC and NHMLA. Nearly 100 international colleagues discussed malacological research over three days, held their banquet and fundraiser at NHMLA, and attended a field trip to the Madrona Marsh in Torrance or the fossils of the Palos Verdes peninsula (with Austin Hendy, Invertebrate Paleontology).

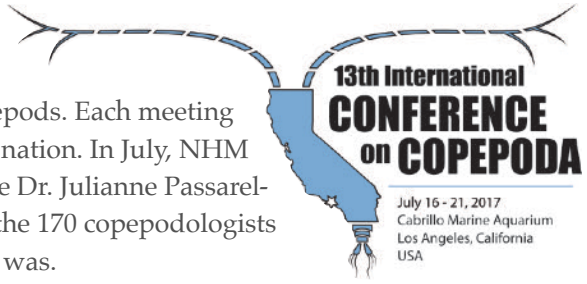
In July, Jann Vendetti attended an iDigBio workshop on digitizing mollusks, presented a poster about Malacology's unique collections (with the help of Lindsey Groves, Collections Manager), and gave an invited talk about the citizen science-based SLIME project at the American Malacological Society meeting in Newark, Delaware.

In August, Jann Vendetti presented "Snails, Slugs & Slime with the Natural History Museum of Los Angeles County" for an enthusiastic group of nearly 100 elementary-school aged children (and their families) at the Ocean Institute in Dana Point, CA.

Marine Biodiversity Center

13th International Conference on Copepoda

Every three years since 1981 the World Association of Copepodologists holds an international conference. The International Conference on Copepoda meetings have become the most important global gatherings for all researchers and students of copepods. Each meeting is unique, teeming with the individuality and culture of the host nation. In July, NHM (R. Wetzer) and the Cabrillo Aquarium (NHM Research Associate Dr. Julianne Passarelli) co-hosted the banquet dinner in the North American Hall for the 170 copepodologists visiting from 29 countries. A fabulous and memorable evening it was.



UNRC

International Urban Wildlife Conference, June 4–7, 2017.

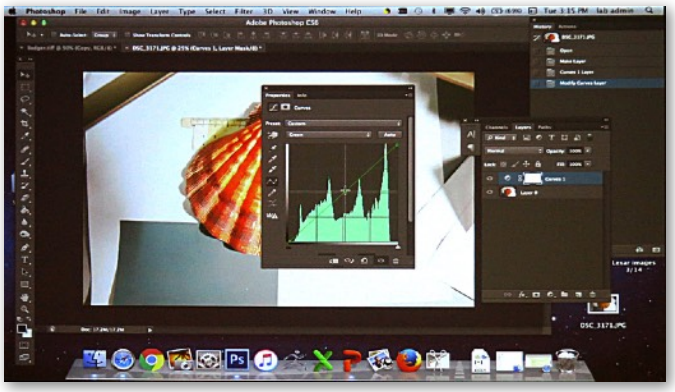
NHMLA was well represented at the International Urban Wildlife Conference, held this year in San Diego. Miguel Ordeñana presented on preliminary results from the Backyard Bat Survey conducted as part of the Super-Project. Lila Higgins presented, "Balancing the Education & Scientific Goals of Urban Biodiversity Focused Citizen Science Projects." Greg Pauly gave a talk entitled "Detecting and Tracking Invasive Species with Citizen Science" and Bree Putman gave a talk on her and Greg's recent urban lizard research entitled, "Does What We Wear Indirectly Influence animals? A Case Study." In addition to these talks, Greg was a co-author on three other talks presented by colleagues at Cal Poly San Luis Obispo and CSU Northridge.

Joint Meeting of Ichthyologists and Herpetologists,

Greg Pauly traveled to the Joint Meeting of Ichthyologists and Herpetologists in Austin, TX July 11–16. He gave a talk entitled "Citizen science is transforming the study of squamate mating behavior: An example from alligator lizards." Greg was a co-author on several other talks and posters, including a poster by his former undergraduate that won the 2017 Victor Hutchison Award for Best Student Poster in Physiology and Morphology, entitled "Morphological Variation Between Two Widely Distributed Populations of *Plethodon albagula*." LACM Herpetology Research Associate Dr. Amanda Zellmer, an assistant professor at Occidental, was awarded the Raymond Semlitsch Research Award ($5,000), which supports early career scientists. This award will fund collaborative research by Zellmer and Pauly assessing impacts of urbanization on gene flow in slender salamanders.

Vertebrate Paleontology

Vanessa Rhue traveled to Alberta, Canada 22–26 August 2017 for the Society of Vertebrate Paleontology (SVP) meetings in Calgary. Vanessa gave a platform presentation, "How to structure an effective volunteer task force in the lab and collections: a case study on establishing criteria for recruitment, selection, and training". Vanessa also wrote a proposal to receive funding from the SVP ExComm to enhance the aesthetic and educational outreach initiatives at the SVP Preparators' Table. The awarded funds allowed for the acquisition of a materials display board, digital tablet, supplies, demos, literature, and shipping crate so that these exhibit features could become a permanent resource at future meetings. She also participated in a training workshop led by Erin Fitzgerald of the University of Chicago titled, "Photography and Photoshop 101: digital imaging techniques and post processing basics for specimen data capture".



Photoshop tips for editing specimen photos in an SVP workshop.

An archival materials board for the SVP Preparators' Table exhibit booth.

External Funding

Citizen Science Program

ASTC Diversity and Leadership Fellowship

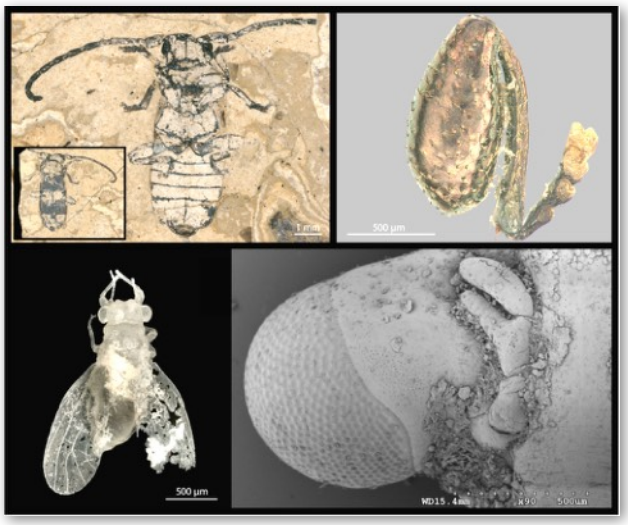
In June, Miguel Ordeñana was awarded an Association of Science and Technology Centers (ASTC) Diversity and Leadership Fellowship. Miguel will use this fellowship to attend the ASTC annual conference in St. Paul, Minnesota, October 20-24.

NSF AISL iPAGE Innovation in Development Project Award

Miguel Ordeñana contributed to an application, along with 4 other staff from other departments, for a development program to attend workshops that would provide training on how to improve inclusivity and accessibility within existing STEM education programs at NHMLA. Su Oh, Gretchen Baker, Nicole Duran, and Jane Shim are the other NHMLA staff involved in this effort.

Invertebrate Paleontology

Invertebrate Paleontology was awarded a third concurrent grant from the National Science Foundation, "Fossil Insects of LA" Partner to Existing Network (PEN) collections digitization grant. This funding supports the digital cataloging and imaging of Invertebrate Paleontology's largest fossil insect collections (Oligocene Rott Formation of Germany; Miocene Barstow Formation; Pleistocene McKittrick Formation), as well as a selection of specimens from the Rancho La Brea Tar Pits. Nearly 11,000 specimens will be databased (6,200 images) and disseminated online as a result of this project. This PEN grant comprises the final contribution to the Fossil Insect Collaborative Themed Collections Network (2013–2017), an initiative to digitally unite nine major fossil insect collections across the country.



A selection of imaging techniques and types of fossil preservation that will be included in our Fossil Insects of Los Angeles *project. Clockwise from top left: Oligocene compression fossil from Germany (standard digital photography), 3D body fossil from asphalt deposits (Keyence microscrope), 3D silica-replaced body fossil from Barstow Formation (Keyence microscrope), 3D body fossil from asphalt deposits (SEM).*

Public Outreach

Citizen Science Program

Adventures in Nature

July 3, Richard Smart gave two presentations to the 1st–2nd grade AIN camps on how they can contribute to the L.A. Nature Map.

July 28, Miguel Ordeñana gave two presentations (3–4 grade, 5–6 grade) to AIN camps on P-22's story and urban mammal research techniques.

California Naturalist Program

July 11, Miguel Ordeñana spoke to students from the California Naturalist program about his urban mammal research and citizen science.

Father's Day Sleepover

Richard Smart gave a presentation on June 18 titled, "Awesome Insect Fathers" to 60 adults and children as part of a Father's Day Sleepover for the Special Events Team.

iNaturalist Workshop

The Citizen Science Program hosted a six-hour iNaturalist workshop at Descanso Gardens. Participants learned how to use the mobile app, how to teach others how to use the mobile app, how to create an iNaturalist project, and how to manage the project. Richard Smart, Miguel Ordeñana, and Maiz Connolly gave the training.

Friends of Exposition Park

July 20, Richard Smart spoke to the high school summer interns at Expo Park about his career path and his role at NHMLA. Fellow NHMLA staff who also presented were Kiara Brown, Richard Hayden, and Kelsey Ziff.

Legendary Cats of Los Angeles Panel Discussion

August 17, NHMLA hosted a panel discussion about the Legendary Cats of L.A. Miguel Ordeñana, Emily Lindsey, Steve Winter (National Geographic), and Jeff Sikich (NPS) presented their work local involvement in puma research which was followed by a discussion moderated by Tom Curwen (LA Times).

National Park Service 101 Anniversary Celebration

The National Parks Conservation Association hosted a panel discussion and celebration at the new Los Angeles State Historic Park in Downtown with a panel discussion about urban nature and access in Los Angeles. Miguel Ordeñana joined a panel from NPS and NPCA.

P-22 Documentary Screening and Panel Discussion

The Cat That Changed America was screened at the Chinese Theater and Miguel Ordeñana accompanied other cast for a panel discussion following the screening.

P-22 Exhibit Press Event

Miguel Ordeñana provided opening remarks and answered questions from the media at the P-22 exhibition press event on July 20.

Sea and Sage Audubon Annual BBQ Fundraiser

On July 29, Miguel Ordeñana was the guest speaker at the San Joaquin Wildlife Preserve in Irvine for the Sea and Sage Audubon Society Annual BBQ Fundraising Event. He spoke about P-22 and the NHMLA Citizen Science Projects.

Summer Nights in the Garden

August 11, Miguel Ordeñana gave two lectures about the P-22 story in the edible garden.

August 25, Lila Higgins and Richard Smart demonstrated balloon mapping twice during the Summer Nights in the Garden program. About 100 people were part of the demonstrations.

Lila and Maiz secure the camera rigging to the balloon.

Dinosaur Institute

Los Angeles County Fair

For the second year, the Dinosaur Institute led public programming at the LA County Fair in Pomona. DI Staff, including Jose Soler, Erika Canola, and Hank Woolley, led educational classes in paleontology for 29 groups of kids and adults, from September 1–22. Their presentations featured hands-on learning with NHM specimens, Q&A with audience members, and also distributing museum passes for excited Fair-goers.

Preparator Jose Soler talks about all things dinosaur.

Preparator Erika Canola gathers interested guests around the presenters table.

DISCO and Citizen Science

Redondo Beach King Harbor

On Saturday, September 16, the staff of the DISCO project teamed up with the Citizen Science group for a public involvement program at King Harbor in Redondo Beach. Attendees had the chance to collect marine invertebrates from the marina floating docks, bring them back to the SEA Lab facility, and help the DISCO project in a quest for non-native (or suspected non-native) species. This was one of the first pilot tests of materials that DISCO is developing for its citizen involvement program that is planned to roll out in 2018 in the marinas of Orange County (sponsored by the California State "Whale Tail" grant program). *The Beach Reporter* covered the event: https://tinyurl.com/DISCO-redondo-beach

NHM teams up with California Academy of Sciences and UC Conservation Genomics

For two early mornings, the shore at Pt. Fermin in San Pedro was the target of a bioblitz representing a remarkable collaborative event. Cal Academy was eager to add Pt. Fermin to its statewide "Snapshot Cal Coast" initia-

tive, documenting marine species across California's coastline. The site is also of interest to the UC Conservation Genomics "CALeDNA" program, collecting and sequencing environmental DNA from habitats across the whole state. Last, but certainly not least, the site is perfect for a survey by NHM's DISCO program, working along with USC Sea Grant and collaborators from Newport Beach. Meeting in the pre-dawn, institutional collaborators worked with dozens of members of the public on both days to document coastal life — in all its aspects from DNA to delicate photos.

Exploring the coast at dawn, with the Port of Los Angeles as a backdrop.

Participants engulfing Maiz Connolly at a tidepool.

Invertebrate Paleontology

Invertebrate Paleontology hosted five teacher-interns from California State University, Dominguez Hills' Stem Teacher in Advanced Residency (STAR) program. The teachers worked in the collection and also designed a lesson plan to go with the NSF grant-funded Cretaceous Seas of California project. IP will be hosting two more STAR teachers during the fall semester.

CSU Dominguez Hills STAR teachers working on lesson plans that incorporate fossils from the Invertebrate Paleontology collection.

La Brea Tar Pits

On September 6th, Emily Lindsey spoke at the Greater Miracle Mile Chamber of Commerce's annual Tarfest Luncheon.

Malacology

Ask a Curator day (September 13) gave Malacology a chance to show one of its best math-in-nature shell tricks, which was ingeniously shared on Twitter by Kelsey Ziff and has accumulated over 15,000 likes and 6,000 retweets. This was the most liked and most retweeted post out of all 1,519 museums who participated in #AskACurator around the globe: https://twitter.com/NHMLA/status/908088264157827073

Twitter loves malacological math!

UNRC

Citizen Science Meet Up: Stetson Ranch

On June 24, Miguel Ordeñana and Maiz Connolly met citizen

scientists to make iNaturalist observations in Stetson Ranch, an area previously devoid of observations. 14 participants and two staff members contributed 320 observations of 123 species.

Compton Creek Clean up and BioBlitz

On August 26, teaming with Heal the Bay, staff from NHMLA worked with about 60 members of the public to bioblitz a section of Compton Creek and pick up trash. 297 observations were made, and over 470 lbs of trash were picked up. Lila Higgins, Miguel Ordeñana, Richard Smart, Maiz Connolly, Greg Pauly, Estella Hernandez, Maria Wong, and Jan Kempf represented NHMLA at this event.

Fellows Event at Placerita Canyon

On July 30, Miguel Ordeñana, Richard Smart, Brian Brown, Greg Pauly, Kimball Garrett, Lisa Gonzalez, and Terry McGlynn (Cal State University, Dominguez Hills) joined the Advancement Team for a Fellows Event at Placerita Canyon. Fellows rotated through four stations: smoke flies, birding, ant catching, and an iNaturalist walk.

Brian Brown talks to the Fellows about smoke flies. Participants were able to try catching smoke flies.

Nature Day: San Fernando Valley Library

On June 24, Nature Day, about 65 library patrons got to talk to museum staff (Lila Higgins, Richard Smart, Miguel Ordeñana, Maiz Connolly, Estella Hernandez, Jane Li, plus Gallery Interpreters and Performance Artists) about specimens representing urban nature/citizen science projects, saw a squirrel puppet show, took nature walks, and participated in nature-themed crafts.

Deb's Park snail and slug bioblitz

On March 17, Jann Vendetti and the interns from the Glendale Community College R&C internship program did a mini snail and slug bioblitz on Deb's Park in Los Angeles while we attended the San Pascual Elementary school snail performance.

Nature Fest on March 18 and 19

The Citizen Science Office and the UNRC staffed specimen tables throughout the afternoon following SuperProject trainings. Miguel shared the story of P-22, and Lisa Gonzalez talked about California bees on both days at the Nature Nook program.

Snail painting was a highlight activity at the UNRC/CS table during Nature Fest. Snails crawled along beets, and then crawled along paper leaving colorful trails.

Extreme Mammals VIP Event

Miguel Ordeñana greeted Fellows and answered questions related to the P-22 addition to the Extreme Mammals exhibit throughout the evening of May 10 at the Extreme Mammals VIP Preview Event.

Mother's Day Sleep Over

Miguel Ordeñana shared stories about non-human urban mammal bat and carnivore mothers (reproduction and behavioral ecology) and how NHM researchers use traditional research methods and citizen science to study these species at the Mother's Day Sleep Over Presentation on May 12. The audience consisted of families.

New Memember Party

Richard Smart talked to new members about NHMLA's citizen science projects, and how they can participate at the New Member Party on May 26.

Kipp Middle School

On May 31, Miguel Ordeñana and Maiz Connolly trained 35 middle school students at Kipp Middle School on how to use iNaturalist. This was a co-program with NHMLA's School Program.

UNRC/BioSCAN

On July 16th, Lisa Gonzalez from the Entomology Department teamed up with Head Gardener Richard Hayden to lead a nature hike through Charmlee Wilderness Park in the Santa Monica Mountains as part of the "In the Field" Public Program series. The team focused on insect pollinators and host plant interactions, and assisted the participants with contributing their observations to iNaturalist.

Vertebrate Paleontology

The Vertebrate Paleontology department offered four behind the scenes tours to Adventure in Natures students. Dr. Sam McLeod, Vanessa Rhue, and Alan Zdinak showcased specimens and projects for groups of 3rd–6th graders on 20 and 26 July 2017.

Vertebrate Paleontology Collections Manager Dr. Sam McLeod,speaks to AIN students about how organisms become fossilized.

On 12 September 2017, Dr. Sam McLeod led two Vertebrate Paleontology collections tours — the first in a series of behind-the-scenes tours for NHM staff.

On 20 September 2017, Dr. Sam McLeod and Vanessa Rhue led 5 tours for nearly 60 advance placement Geology students from Frontier High School, Bakersfield. Fossil deposits from the Central San Joaquin Valley of California were showcased, such as Sharktooth Hill, Red Rock Canyon, and McKittrick.

VP Volunteer Debora Lee demonstrates fossil preparation techniques using hand tools for a group of senior High School geology students from Bakersfield.

Student Mentoring and Research

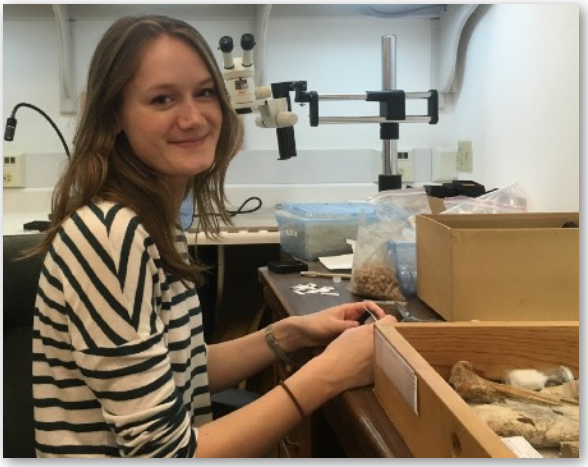
Dinosaur Institute

Internships

Princeton Internships in Civic Service

Trevor Fisher joined the Dinosaur Institute in early June as a Princeton PICS Intern. Working under Collections Manager Maureen Walsh, Trevor moved many projects forward as he expanded and organized the entire Hell Creek Collection, reorganized the holotype collection, updated the department's web page, archived thousands of photos of localities and specimens, and joined the crew at the Gnatalie bone bed in Utah. Trevor was a truly energetic and enthusiastic addition to the department this summer. We will miss him!

Trevor Fisher, Princeton University PICS Intern 2017.



BBSRC bioscience for the future

Sophie Frampton is also joining the Dinosaur Institute as an intern. Upon completion of her undergraduate degree in Biological Sciences at the University of Oxford, she undertook a Master's degree in Developmental Biology at the University of Manchester. During this time, she completed a rotation project in the Ashe Lab and decided to stay for her PhD. She investigates BMP signal regulation during dorsal-ventral axis patterning of the early *Drosophila* fly embryo. She is excited to intern with the Dinosaur Institute over the next 3 months.

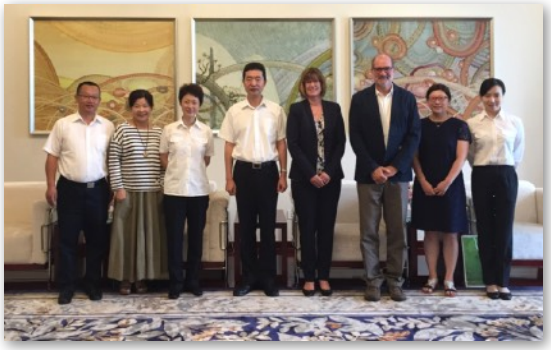
Proyecto Dinosaurios

Proyecto Dinosaurios is in the news, check it out!

https://nhm.org/site/research-collections/news/spending-summer-dinosaurs

Research and Cooperation in China

Early in September, Senior VP of Research and Collections, Dr. Luis Chiappe traveled to China with NHM President Lori Betteson Varga to visit the Shanghai and Beijing Natural History Museums (BMNH). Dr. Betteson Varga was awed by magnificent fossils of Early Cretaceous, Jehol Biota while being hosted by BMNH Director, Meng Qingjin. She visited the preparation lab and collections of the BMNH, dis-



Executives of the Shanghai Museum of Natural History welcome NHM President Dr. Lori Betteson Varga and VP of Research and Collections, Dr. Luis Chiappe.

NHM President Dr. Lori Betteson Varga and Dr. Luis Chiappe view a pristine fossil from the Early Cretaceous of China.

cussing the potential of future projects between the two museums. Simultaneously, Collections Manager Maureen Walsh prepared challenging but rewarding Jehol specimens, early Cretaceous birds that are the focus of Dr. Chiappe's research.

Nathan Carroll visited collections at the Institute of Vertebrate Paleontology and Paleoanthropology (IVPP) and the Beijing Museum of Natural History (BMNH), both in Beijing, to collect data for his research on feather evolution. The microscopic feather details preserved in the fossils from the Jehol are helping Nathan test hypotheses about the evolution of flight feathers in ancient birds.

Collection Manager of the BMNH, Lui Di, works with Nate Carroll to uncover the structure and function of early avian wings.

As part of the ongoing research into the Gnatalie Quarry, Dr. Martin Sander demonstrated the process of histology core sampling for clues to bone growth, bone association, and paleoecology in the 4th floor lab.

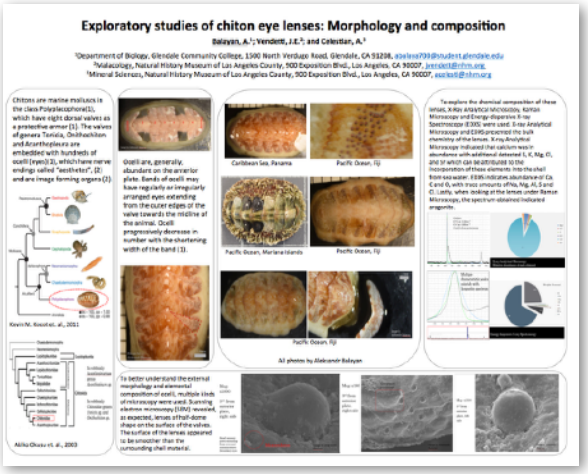
Entomology

A new group of students are now at the museum, working with Brian Brown in the Entomology Section. There are four interns from Occidental College, and two volunteers from Cal State Dominguez Hills, who are forming a work force to prepare true flies (Diptera) from the many trap samples in Entomology's two freezers. This material, much of it from the tropics, is a goldmine of dipterological treasures that will be made available to the scientific community for the first time, once the students sort, mount, and label them.

Two students from Brazil have been in Los Angeles lately, working with our increasingly important Diptera collection: Danilo Pacheco from the Amazonian Research Institute in Manaus, studying moth flies (Psychodidae), and Ana Vasconcelos from the Universidade Federal do Paraná, Curitiba, studying Uliidiidae.

Malacology

In June, the 5th cohort of Glendale Community College/ NHMLA interns presented their research projects in the Times Mirror room at NHMLA. Of the ten projects, 3 focused on malacological collections and included: Sarah Macdonald, *Comparative analysis of mollusk shell compositions from geologically active marine environments*, Seuna Gerigoryan, *An exploratory study of selected mollusk shell composition*, and Aleksandr Balayan, *Exploratory studies of polyplacophoran eyes.* These students' projects were greatly enhanced by guidance from Aaron Celestian and equipment use in Mineralogy.



Poster by Aleksandr Balayan.

Marine Biodiversity Center

Advanced Research Internship Program (ARIP) 2017

This is the Marine Biodiversity Center's second year hosting the ARIP internship program. ARIP is designed to give high school students pursuing a career in the sciences practical experience working in a laboratory and conducting primary research to build the necessary skills to be contributing members of the scientific community. This year, fourteen students conducted field collections of fresh marine invertebrate material that they brought back to the NHM Collaboratory and processed through a molecular pipeline for DNA barcode generation. At the end of the two-week on-site program — from field to DNA — each student posted their contributions to the BarCode of Life database. Two of last year's students returned to serve as mentors and chaperones to this year's cohort. We are very pleased that participation in our program contributed to admission to Harvard, MIT, University of Virginia, and USC for four of last year's students. We look forward to learning where this year's seniors land.

Adam Wall combining a crab dissection with a lunch trip with the ARIP interns.

Amanda Reshke filling out a Daily Task Log on her first day of volunteering in the Vertebrate Paleontology department.

Vertebrate Paleontology

The Vertebrate Paleontology department is pleased to welcome Amanda Reshke as a department intern for the fall. Amanda joins us from UCLA, where she is pursuing an undergraduate degree in Biology. Amanda took an interest in paleontology and sought out Assistant Collections Manager,Vanessa Rhue for a career interview last spring. Amanda will be assisting with various curation, housing, and inventory projects. In her spare time she enjoys playing volleyball, watching documentaries, and spending time with friends and family.

Distinguished Visitors

Anthropology

On July 20th, KT Hajeian gave a tour of the Ethnology storeroom to Debika Sen and Mark Sood, a lovely couple who became Museum Fellows this year. Debika and Mark own and operate a travel company that arranges unique tours to nearly every part of the world. Their travels make them more familiar than most with the scope of the Ethnology collections, though we were still able to show them items they've never seen and provide them with ideas for their future travel programs.

Dinosaur Institute

Los Angeles Child Guidance Clinic
Improving children's mental health since 1924

The Dinosaur Institute would like to thank the Los Angeles Child Guidance Clinic for bringing a super group of kids to visit our collection, the 4th Floor lab and performance venue. "Inspiring wonder for our natural and cultural worlds" will always connect the NHM to its community and beyond.

History

The Seaver Center was visited by Vida and Peter Felsenfeld in August. Vida's great grandfather (12 generations back) was Luis Quintero, one of the eleven founding fathers of Los Angeles in 1781. He left Santa Barbara in 1786, where he became the master tailor for the Santa Barbara presidio. Pictured are Vida and Peter, holding an illustration depicting Luis Quintero and his wife Maria Petra Rubio-Quintero, drawn many years ago by a staff artist.

Invertebrate Paleontology

Invertebrate Paleontology hosted three students this summer: Alexandra Buscek, PhD candidate at the American Museum of Natural History; Elizabeth Bullard, PhD candidate at the University of California San Diego; and Shawn Wiedrick, California State University Northridge. We hosted visiting researchers Torrey Nyborg and Brant Nyborg (Loma Linda University), who came to research and identify crabs in support of the ongoing EPICC-TCN digitization grant, paleoentomologist John Skartveit (NLA University College, Norway), and Tatsuo Oji and Moe Kato (Nagoya University, Japan) who visited to study our fossil crinoids.

Elizabeth Bullard (UC San Diego) measuring fossil clams for her doctoral research.

Entomology

For the last year, California State University, Dominguez Hills, professor and ant ecologist Dr. Terry McGlynn has been on sabbatical in the Entomology Section. As a kind of "stay-sabbatical", Dr. McGlynn has been busy interacting with the Urban Nature Research Center, participating in museum led activities, and of course, publishing. The following papers have recently appeared with his museum affiliation attached:

Nelson, A.S., T. Scott, M. Barczyk, T.P. McGlynn, A. Avelos. E. Clifton, A. Das, A. Figueiredo, L. Figueroa, M. Janowiecki, S. Pahlke, J. Rana, and S. O'Donnell. 2017. Day/night upper thermal limits differ within *Ectatomma ruidum* ant colonies. *Insectes Sociaux*, in press.

McGlynn, T.P. 2017. Identity Matters: Communicating about equity and opportunity for students in minority-serving institutions. *Annals of the Entomological Society of America* 110: 480-483. DOI: 10.1093/aesa/sax050

McGlynn, T.P. 2017. Review of "Insects and other Arthropods of Tropical America." *Quarterly Review of Biology* 92: 341. DOI: 10.1086/693640.

O'Donnell, S., and T.P. McGlynn. 2017. Emigrating on the fly: A novel method of army ant colony movement observed in *Eciton mexicanum*. *Journal of Insect Behavior* 30: early online. DOI: 10.1007/s10905-017-9635-z

Gibb, H., R.R. Dunn, N.J. Sanders, and 70 authors (including T.P. McGlynn). 2017. A global database of ant species abundances. *Ecology* 98: 883-884. DOI: 10.1002/ecy.1682

Ornithology

The Ornithology section was delighted to host Stephen C. Bromley and his extended family of over 60 adults and children on 28 July. As a very young man, Bromley collected over 700 bird specimens and many mammal specimens for NHM in the 1950s, primarily in Bolivia, Venezuela, and Chad. Retired from teaching in Michigan, Bromley now lives in Utah. In the accompanying photo, he shows a Boat-billed Heron (*Cochlearius cochlearius*) that he collected in Venezuela in 1958 to some of his family.

Polychaetes

Polychaetes has been enjoying two long-term international visitors. Dr. Vasily Radashevsky, from the V. Zhirmunsky Institute of Marine Biology, Vladivostok, Russia, has been here for two months going through our holdings of spionid polychaetes. As his stay overlapped with Leslie Harris' Hakai bioblitz, she was able to bring him along to study Pacific Northwest spionids. Vinicius da Rocha Miranda, a Ph.D. student at Universidade Federal Fluminense, Niterói, Brazil, is winding up a five month stay. His thesis is on the phylogeny of polychaete families Sigalionidae and Pisionidae, both of which we have in quantity.

Vasily Radashevsky at Hakai.

Vinicius da Rocha Miranda in the LACM Worm Womb.

Vertebrate Paleontology

On 27 June, Dr. Alton Dooley, Executive Director for the Western Science Center, Hemet, California visited the collections along with Brett Dooley. They are working on a large scale Mastodon study, comparing teeth from the West Coast of North America to those of the Midwest.

Dr. Alton Dooley examines a lower jaw with teeth of a Mastodon housed in our oversize storage area.

On 30 June 2017, Torrey Nyborg, Brant Nyborg, and John Wilkerson visited the Vertebrate Paleontology collections to examine Titus Canyon material in preparation for an upcoming field trip, where they will revisit old CalTech localities later this year.

On 3 August, Dr. Larisa DeSantis, Assistant Professor at Vanderbilt University, visited our collections to make dental molds of Pleistocene material for microwear analysis. She focused her data set on fossil specimens of dog and camel from the McKittrick and Maricopa Brea deposits.

Dr. Larisa DeSantis holds up a lower jaw of a dire wolf, which displays a blue mold over a back molar.

On 16 August 2017, Eric Scott, Program Manager and Paleontologist for Cogstone, visited to examine specimens of *Bison* for his upcoming SVP talk in Calgary, Canada.

Eric Scott holds up a Bison *atlas vertebra from the Vertebrate Paleontology collections.*

Dr. Kumiko Matsui visited from Japan during 11–13 September 2017. On this visit, she focused on examining desmostylian specimens — especially our holotype of *Neoparadoxia cecilialina*. She also borrowed skull elements with periotic bones from the Temblor Formation for CT scanning at the National Museum of Nature and Science in Japan.

Dr. Kumiko Matsui takes measurements of the holotype specimen, Neoparadoxia cecilialina, *on display in the Age of Mammals hall.*

Graduate student Giovanne Mendes, University of São Paulo, Brazil, is working on the *Alligatoroidea* clade, especially those of South America (genera *Caiman, Purussaurus, Melanosuchus, Mourasuchus, Paleosuchus,* and others). He visited our collections for an entire week, 11–15 September 2017, and will be working with Dr. Christopher Brochu of the University of Iowa on aspects of his dissertation.

Giovanne Mendes is shown studying two large extinct crocodyliform right dentaries, Purussaurus brasiliensis *(shown in the foreground from Peru) and* Mourasuchus *(shown in the background from Peru).*

Recent Publications

Alves, P. and **Kampf, A.** (2017) Serrabrancaita de la mina Sitio do Castelo, Folgosinho (Guarda, Portugal). *Acopios* **8**, 11-15. https://mti-acopios.blogspot.pt/

Brown B., and **E. Hartop** (2017) Mystery mushroom malingerers: *Megaselia marquezi* Hartop et al. 2015 (Diptera: Phoridae). *Biodiversity Data Journal* **5**: e15052. https://doi.org/10.3897/BDJ.5.e15052

Chukanov, N.V., Aksenov, S.M., Rastsvetaeva, R.K., **Kampf, A.R.**, Mohn, G., Belakovskiy, D.I. and Lorenz, J.A. (2016) Riotintoite, $Al(SO_4)(OH)\cdot 3H_2O$, a new mineral from La Vendida copper mine, Antofagasta Region, Chile. *Canadian Mineralogist* **54**, 1293-1305. DOI: 10.3749/canmin.1500111

Chukanov, N.V., Krzhizhanovskaya, M.G., Pekov, I.V., Grey, I.E., Price, J.R., Britvin, S.N., **Kampf, A.R.**, MacRae, C.M., Dünkel, B., Keck, E., and Belakovskiy, D.I. (2017) Zincoberaunite, $ZnFe^{3+}{}_5(PO_4)_4(OH)_5\cdot 6H_2O$, a new mineral from Hagendorf South pegmatite, Germany. *Mineralogy and Petrology* **111**, 351-361. DOI: 10.1007/s00710-016-0482-y

Friis, H., Weller, M.T. and **Kampf, A.R.** (2017) Hansesmarkite, $Ca_2Mn_2Nb_6O_{19}\cdot 20H_2O$, a new hexaniobate from a syenite pegmatite in the Larvik Plutonic Complex, southern Norway. *Mineralogical Magazine* **81**, 543-554. DOI: 10.1180/minmag.2016.080.109

Grey, I.E., Keck, E., **Kampf, A.R.**, Mumme, W.G., Macrae, C.M., Gable, R.W., Glenn, A.M. and Davidson, C.J. (2017) Steinmetzite, $Zn_2Fe^{3+}(PO_4)_2(OH)\cdot 3H_2O$, a new mineral formed from alteration of phosphophyllite at the Hagendorf Süd pegmatite, Bavaria. *Mineralogical Magazine* **81**, 329-338. DOI: 10.1180/minmag.2016.080.100

Grey, I.E., Keck, E., MacRae, C.M., Glenn, A.M., **Kampf, A.R.**, Nash, B.P. and Mills, S.M. (2017) Crystal chemistry of zinc incorporation in strunzite group minerals. *Mineralogical Magazine* **81**, 755-766. 10.1180/minmag.2016.080.151

Kampf, A.R., Adams, P.M. and Nash, B.P. (2016) Whiteite-(CaMgMg), $CaMg_3Al_2(PO_4)_4(OH)_2\cdot 8H_2O$, a new jahnsite-group mineral from the Northern Belle mine, Candelaria, Nevada, U.S.A. *Canadian Mineralogist* **54**, 1513-1523. DOI: 10.3749/canmin.1600051

Kampf, A.R., Adams, P.M., Barwood, H. and Nash, B.P. (2017) Fluorwavellite, $Al_3(PO_4)_2(OH)_2F\cdot 5H_2O$, the fluorine analogue of wavellite. *American Mineralogist* **102**, 909-915. DOI: 10.2138/am-2017-5948

Kampf, A.R., Cooper, M.A., Nash, B.P., Cerling, T., Marty, J., Hummer, D.R., **Celestian, A.J.**, Rose, T.P. and Trebisky, T.J. (2017) Rowleyite, $[Na(NH_4,K)_9Cl_4][V^{5+,4+}{}_2(P,As)O_8]_6\cdot n[H_2O,Na,NH_4,K,Cl]$, a new mineral with a mesoporous framework structure. *American Mineralogist* **102**, 1037-1044. DOI: 10.2138/am-2017-5977

Kampf, A.R., Grey, I.E., Alves, P., Mills, S.M., Nash, B.P., MacRae, C.M. and Keck, E. (2017) Zincostrunzite, $ZnFe^{3+}_2(PO_4)_2(OH)_2{\cdot}6.5H_2O$, a new mineral from the Sitio do Castelo mine, Portugal, and the Hagendorf-Süd pegmatite, Germany. *European Journal of Mineralogy* **29**, 315-322. DOI: 10.1127/ejm/2017/0029-2593

Kampf, A.R., Hughes, J.M., Nash, B.P., and Marty, J. (2017) Mesaite, $CaMn^{2+}_5(V_2O_7)_3{\cdot}12H_2O$, a new vanadate mineral from the Packrat mine, near Gateway, Mesa County, Colorado, USA. *Mineralogical Magazine* **81**, 319-327. DOI: 10.1180/minmag.2016.080.095

Kampf, A.R., Hughes, J.M., Nash, B.P., Marty, J., Cooper, M.A., Hawthorne, F.C., Karppenko, V.Y., Pautov, L.A. and Agakhanov, A.A. (2016) Revision of the formulas of wernerbaurite and schindlerite: ammonium- rather than hydronium-bearing decavanadate minerals. *Canadian Mineralogist* **54**, 555-558. DOI: 10.3749/canmin.1500081

Kampf, A.R., Nash, B.P. and Marty, J. (2017) Chinleite-(Y), $NaY(SO_4)_2{\cdot}H_2O$, a new rare-earth sulfate mineral structurally related to bassanite. *Mineralogical Magazine* **81**, 909-916. DOI: 10.1180/minmag.2016.080.140

Kampf, A.R., Nash, B.P., Dini, M. and Molina Donoso, A.A. (2017) Juansilvaite, $Na_5Al_3[AsO_3(OH)]_4[AsO_2(OH)_2]_2(SO_4)_2{\cdot}4H_2O$, a new arsenate-sulfate from the Torrecillas mine, Iquique Province, Chile. *Mineralogical Magazine* **81**, 619-628. DOI: 10.1180/minmag.2016.080.113

Kampf, A.R., Nash, B.P., Marty, J. and Hughes, J.M. (2017) Burroite, $Ca_2(NH_4)_2(V_{10}O_{28}){\cdot}15H_2O$, a new decavanadate mineral from the Burro mine, San Miguel County, Colorado. *Canadian Mineralogist* **55**, 473-481. DOI: 10.3749/canmin.1700004

Kampf, A.R., Nash, B.P., Marty, J., Hughes, J.M. and Rose, T.P. (2017) Hydropascoite, $Ca_3(V_{10}O_{28}){\cdot}24H_2O$, a new decavanadate mineral from the Packrat mine, Mesa County, Colorado. *Canadian Mineralogist* **55**, 207-217. DOI: 10.3749/canmin.1600069

Kampf, A.R., Plášil, J., Čejka, J., Marty, J., Škoda, R. and Lapčák, L. (2017) Alwilkinsite-(Y), a new rare-earth uranyl sulfate mineral from the Blue Lizard mine, San Juan County, Utah, USA. *Mineralogical Magazine* **81**, 895-907. DOI: 10.1180/minmag.2016.080.139

Kampf, A.R., Plášil, J., Kasatkin, A.V., Marty, J. and Čejka, J. (2017) Klaprothite, péligotite and ottohahnite, three new sodium uranyl sulfate minerals with bidentate UO7–SO4 linkages from the Blue Lizard mine, San Juan County, Utah, USA. *Mineralogical Magazine* **81**, 753-779. DOI: 10.1180/minmag.2016.080.120

Kampf, A.R., Rossman, G.R., Ma, C. and Williams, P.A. (2017) Kyawthuite, $Bi^{3+}Sb^{5+}O_4$, a new gem mineral from Mogok, Burma (Myanmar). *Mineralogical Magazine* **81**, 477-484. DOI: 10.1180/minmag.2016.080.102

Kampf, A.R., Sejkora, J., Witzke, T., Plášil, J., Čejka, J., Nash, B.P. and Marty, J. (2017) Rietveldite, Fe(UO2)(SO4)2(H2O)5, a new uranyl sulfate mineral from Giveaway-Simplot mine (Utah, USA), Willi Agatz mine (Saxony, Germany) and Jáchymov (Czech Republic). *Journal of Geosciences* **62**, 107-120. DOI: 10.3190/jgeosci.236

Luque, J., Christy, J. H., **Hendy, A. J.**, Rosenberg, M. S., Portell, R. W., Kerr, K. A., & Palmer, A. R. (2017). Quaternary intertidal and supratidal crabs (Decapoda, Brachyura) from tropical America and the systematic affinities of fossil fiddler crabs. *Journal of Systematic Palaeontology* 1-19. DOI: 10.1080/14772019.2017.1362599

Mills, S.J., Christy, A.G.., **Kampf, A.R.**, Birch, W.D. and Kasatkin, A. (2017) Hydroxykenoelsmoreite, the first new mineral from the Republic of Burundi, *European Journal of Mineralogy* **29**, 491-497. DOI: 10.1127/ejm/2017/0029-2618

Mills, S.J., **Kampf, A.R.**, Nestola, F., Williams, P.A., Leverett, P., Hejazi, L., Hibbs, D.E., Mrorsko, M., Alvaro, M. and Kasatkin, A.V. (2017) Wampenite, $C_{18}H_{16}$, a new organic mineral from the fossil conifer locality at Wampen, Bavaria, Germany. *European Journal of Mineralogy* **29**, 511-515. DOI: 10.1127/ejm/2017/0029-2621

Nishio–Hamane, D., Momma, K., Ohnishi, M., Shimobayashi, N., Miyawaki, R., Tomita, N., Okuma, R., **Kampf, A.R.** and Minakawa, T. (2017) Iyoite, $MnCuCl(OH)_3$, and misakiite, $Cu_3Mn(OH)_6Cl_2$: new members of the atacamite family from Sadamisaki Peninsula, Ehime Prefecture, Japan. *Mineralogical Magazine* **81**, 485-498. DOI: 10.1180/minmag.2016.080.104

Olds, T., Sadergaski, L.R., Plášil, J., **Kampf, A.R.,** Burns, P., Steele, I.M., Marty, J., Carlson, S.M. and Mills, O.P. (2017) Leószilárdite, the first Na,Mg-containing uranyl carbonate from the Markey Mine, San Juan County, Utah, USA. *Mineralogical Magazine* **81**, 743-754. 10.1180/minmag.2016.080.149

Pauly, G.B., and K. S. Delaney. 2017. Late-season reproduction in Western Toads (*Bufo boreas*). *Bulletin of the Southern California Academy of Sciences* **116**:147–151.

This research paper resulted from an observation submitted to the RASCals Citizen Science Project. Read more about this discovery in the Nature in L.A. blog: https://nhm.org/nature/blog/tadpoles-fashionably-late-pool-party

Putman, B.J., Drury, J.P., Blumstein, D.T. and **G.B. Pauly**. 2017. Fear no colors? Observer clothing color influences lizard behavior. *PLOS One* **12**(8): e0182146.

To learn more about this research project, check out the write-up on the Nature in L.A. blog: http://nhm.org/nature/blog/what-wear-when-lizard-watching

Richards, R.P., Shewfelt, W.R., Carlson, E.H., **Kampf, A.R.** and Nash, B.P. (2017) Mineralogy of the Huron River shale fire, Huron County, Ohio. *Rocks & Minerals* **92**, 244-263. DOI: 10.1080/00357529.2017.1283660

Spear, D. M., **G. B. Pauly**, and K. Kaiser. 2017. Citizen Science as a Tool for Augmenting Museum Collection Data from Urban Areas. *Frontiers in Ecology and Evolution* **5**:86.

Staff Departures & New Staff

Research Library

Marissa Kings joined the NHM Research Library in January as part of the National Digital Stewardship Residency (NDSR) program, funded by a grant from the Institute of Museum and Library Services (IMLS). Under the guidance of chief librarian Richard Hulser, Kings is working in collaboration with the Biodiversity Heritage Library (BHL) to research best practices in digital library management to make recommendations for improvements to the next version of the BHL website. She is also working to create a plan for selecting and digitizing NHM library collections to make accessible on the museum's website.

NHM is one of five institutions participating in the IMLS Biodiversity Heritage Library NDSR cohort. Four other residents are based at the Chicago Botanic Garden, the Missouri Botanical Garden, the Smithsonian Libraries, and the Ernst Mayr Library of the Museum of Comparative Zoology at Harvard University. By the end of the grant cycle in January 2018, the residents will have produced best practices documents, presented their progress and findings at both national and international conferences, and coordinated webinars on relevant topics for public viewing. The cohort maintains a blog at http://ndsrbhl.wordpress.com.

Photo: IMG_9340.JPG

La Brea Tar Pits

The La Brea Tar Pits has welcomed two new postdocs in August! Dr. Alexis Mychajliw is a Postdoctoral Fellow in Holocene Paleoecology. Alexis recently received her PhD from Stanford University, where she investigated Caribbean mammal extinction and survival across the past 15,000 years using archaeological, paleontological, and modern ecological datasets, including surveys of the venomous Hispaniolan *Solenodon*. At La Brea, she is working to develop a synthetic understanding of Southern California in the Holocene, including radiocarbon dating and stable isotope analysis of La Brea and historic small vertebrate specimens. By combining fossil and modern data, she hopes to provide baselines of Los Angeles' rapidly changing biodiversity.

Dr. Libby Ellwood is a postdoctoral Research Fellow in citizen science, working on an NSF-funded project to reconstruct paleo food webs. Dr. Ellwood's research occurs at the intersection of climate change, conservation, and citizen science; she aims to understand past systems while conducting contemporary research to see how these systems have changed and how they may continue to change in the future. Dr. Ellwood recently completed a postdoc with iDigBio at Florida State University where she worked to engage the public in digitizing specimens and data contained in natural history collections. Here at the Tar Pits, she will be developing educational resources to involve students in sorting microfossils that will inform us of the small mammals and plants that comprised ecosystems here 50-30,000 years ago.

Research and Collections

Former Museum employee Bailee DesRocher has joined R&C to complete her Science Illustration Graduate Certification at CSU Monterey Bay, as a science illustration intern with the La Brea Tar Pits & Museum, developing outreach materials for their current NSF collaboration and other projects. Next she will move to Mineral Sciences to work on illustrations for publication, materials for the Tuscon Gem and Mineral Show, and more.

Miscellaneous

Citizen Science Program

Miguel Ordeñana in the Press

Miguel and the P-22 Exhibit were featured in *LAist*: http://laist.com/2017/08/01/p_22.php#photo-1

Miguel was profiled by *LA Weekly* on August 14 in an article about L.A. pumas, P-22 exhibit, and Miguel's work in urban wildlife research and outreach:
http://www.laweekly.com/arts/mountain-lion-p-22s-discoverer-biologist-miguel-ordenana-is-on-a-mission-8502478

Miguel was interviewed for an article in *L.A. City Watch* on August 21 about L.A. Pumas, P-22, and the P-22 Exhibit. http://www.citywatchla.com/index.php/los-angeles-for-rss/13843-this-is-one-cool-cat

P-22 Exhibit Opening Press Event

The P-22 Exhibit Opening Press Event was well attended and covered by 24 media outlets. Here are a couple of examples:

KABC: http://abc7.com/pets/natural-history-museum-exhibit-focuses-on-famous-p-22-cougar/2240910/
KPCC: http://www.scpr.org/news/2017/07/20/73970/la-s-most-famous-feline-p-22-gets-a-special-exhibi/?slide=2

Entomology

Assistant VP of R&C Jody Martin and Brian Brown had lunch with, and led tours for, about 30 members of Starfish Impact, Inc., a philanthropic consulting company founded in 2005 that provides investing services for non-profits.

Invertebrate Paleontology

Lindsay Walker and Katy Estes-Smargiassi of Invertebrate Paleontology escorted specimens to the set of *Bill Nye Saves the World* season 2. The episode will air in 2018.

It was the pleasure of the Invertebrate Paleontology team to help Joey Looby, an 8th grader from Ventura, identify and learn about his growing fossil collection. Joey subsequently won awards from the the American Federation of Mineralogical Societies and the Californian Federation of Mineralogical Societies for his fossil collection displays.

Joey Looby sharing his awards with Austin Hendy of Invertebrate Paleontology.

Invertebrate Paleontology Collections Assistant and El Camino College student Javaria Aziz was awarded a $1,000 scholarship from the Paleontological Society to be a Student Ambassador at the 2017 Geological Society of America meeting in Seattle, WA. She will be presenting on research she has conducted at the Santa Barbara Formation Rincon Hill field site in Carpinteria with Austin Hendy and Katy Estes-Smargiassi.

Invertebrate Paleontology student alumni are off doing great things in the world! Cambria Rodriguez is currently an intern with the Panetta Institute for Public Policy, working on Capitol Hill in Washington, D.C. as a staffer to California Congressman Mike Thompson. Maria Rodriguez spent the summer as a Geoscientists-in-the-Parks intern at Glen Canyon National Recreation Area, and has now accepted a full time position as the Glen Canyon Museum Curator. Alex Hernandez spent his summer as an invertebrate paleontology intern at the American Museum of Natural History, and is currently a field intern with the Denver Museum of Nature and Science.

Invertebrate Paleontology collections assistant Cambria Rodriguez goes to Washington!

Malacology

In August, Katie McKissick created an educational Twitter story about "Sandy the sinistral snail", a rare genetic oddity donated to Malacology by citizen science and high school student Alex Bairstow, and first documented on iNaturalist: https://www.inaturalist.org/observations/6277233

In September, Tierra Curry, Senior Scientist at the Center for Biological Diversity, in collaboration with Cedric Lee (Malacology research associate) and Jann Vendetti, filed a petition to include the San Gabriel chestnut snail (*Glyptostoma gabrielense*) in the California Endangered Species Act.

Sandy, Malacology's left-coiling snail.

The *Research & Collections Newsletter* is issued quarterly by the Research and Collections staff of the Natural History Museum of Los Angeles County.

Editor: Dr. Joel W. Martin, Curator of Crustacea and Associate Vice President, Research & Collections.

Layout: N. Dean Pentcheff.

All issues of the newsletter may be found at:
http://research.nhm.org/newsletters