Research & Collections Newsletter



Summer 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

Anthropology

Through a collaborative effort between Anthropology, the Conservators, and the Smithsonian Institution, Anthropology's Precolumbian gold catfish F.A.682.67-7 now has a date of 1570 ±30 BP according to Beta Analytic. Richard Cooke of the Smithsonian paid for the dating and the catfish will appear in a chapter he is writing, *Resurrecting Playa Venado, a Precolumbian Site in Central Panama*, part of a larger work published by Dumbarton Oaks, *Precolumbian Art of Lower Central America and Colombia*.

Researchers using our archaeology collections included Cat Santasillas a doctoral student from University of California Riverside, researching Tlatilco archaeological ceramics, Sue Bergh, Cleveland Art Museum, studying our Ancient Latin American textiles; Matthew Robb Chief Curator of the Fowler Museum UCLA, regarding our Teotihuacan snake fresco; Julia Burtenshaw, Postdoctoral Curatorial Fellow Art of the Ancient Americas LACMA, Michelle Rich, Mellon Postdoctoral Curatorial Fellow Art of the Ancient Americas LACMA, and Ilona Katzew, Head of LACMA's Latin American Art Department, all came to see our Precolumbian gold collection; Dana Doyle, California State University Long Beach School of Art, examined Anthropology's exhibit archives for information on Latin American Textiles.



Gold Catfish With Clay Core from The Playa Venado Site, Panama.

Trevor Harrison, a graduate student from the Maritime Studies Program, East Carolina University, Greenville North Carolina, used our collections from Muwu CA-Ven-11 and Simom'o CA-Ven 26 to research Chumash canoe construction.

Anthropology Collection Managers Chris Coleman and KT Hajeian gave a presentation on identifying archaeological artifacts to graduate students from the USC School of Architecture's Heritage Conservation Program for their class in Practical Archaeology taught by Mary Ringhoff.

Dinosaur Institute

Nate Smith and the Dinosaur Institute received nearly 500 lbs of fossil-bearing rocks from the Middle Triassic upper Fremouw Formation of Antarctica, which includes over 100 vertebrate specimens. These rocks were collected by Dr. William Hammer (Augustana College) in 1990–91 and will be reposited at the NHMLA as part of ongoing research on the Mesozoic vertebrate fossils of Antarctica.

Invertebrate Paleontology

Invertebrate Paleontology have completed a significant collection reorganization to accommodate new storage cabinets and increase efficiency of space utilization. Over the span of a week nearly 40 cabinets were emptied, moved, refilled, and labelled. This was made possible through the tremendous efforts by museum Operations staff and our volunteers and student interns.

Photo of row of new cabinets in Invertebrate Paleontology.

Marine Biodiversity Center

Smoothly Rolling Along

The R&C compactors have clean runners and are rolling smoothly after a visit from the McMurray-Stern service technicians. Many of our collections are housed on these compactorized shelving units and a much needed general servicing was performed in May. Problem carriages were repaired and the runners embedded in the floor were cleaned and checked. Some of our compactors have been holding our collections since the early 1980s, so periodic servicing is essential in keeping our collections safe.

Mineral Sciences

Storage Expansion

We have expanded our storage space significantly! We were only able to hold about 20,000 thumbnail specimens, but now we can store 120,000+ thumbnails. With these new cabinets, our micro-mount cabinets, and larger hand specimen drawers, we should be able to house over 300,000 high quality minerals for research and archival purposes.



Field Work

Dinosaur Institute

Luis Chiappe, Pedro Mocho and Jose Soler Martinez travelled to Western São Paolo State, Brazil to conduct field work. The work resulted in an important collection of Late Cretaceous Early Birds.





From left to right: William Nava, Director of the Museum of Paleontology, Marilia, Brazil and Dr. Luis Chiappe, Director, R&C, establish new collaborations in the research of Late Cretaceous birds of Gondwana.

From left to right: Dr. Pedro Mocho-Lopes, Jose Soler, DI; William Navos, Museum of Paleontology, Marilia, Dr. Agustin Martinelli, Federal University of Rio Grande do Sul, Brazil and Dr. Ryan Tucker, Stellenbosch University, South Africa.

DISCO

The Museum's Diversity Initiative for the Southern California Ocean (DISCO) project is expanding its cutting edge research in the field of environmental DNA (eDNA) beyond our Southern Californian Ocean — just outside of the water up onto the shore to be exact. Until now, DISCO's work in eDNA has focused on collecting and analyzing the total genetic diversity of all of the free floating DNA (eDNA) in aquatic environments. Starting with a new partnership with UC's *CALeDNA* we are now using the eDNA method to explore yet one more habitat: (somewhat) dry land — sandy beaches and the rocky intertidal. Our first collecting trip for environmental DNA from soil and sediment took place in San Diego back in April. Our next trip to collect eDNA sediment samples will take place at our local beach, Pt. Fermin, where the DISCO project team will be joined by members of CALe-DNA, NHMLA's Citizen Science teams, and local citizen scientists of all ages. While our shoreline is very small, it still holds some of the most indescribably diverse habitats in all of Southern California. Despite their amazing diversity, our shorelines are extremely vulnerable to the effects of climate change (e.g. ocean warming and sea level rise) and therefore warrant our full attention and study if we hope to preserve these local biodiversity hotspots to the benefit of all.

Invertebrate Paleontology

Alexandra Buczek (Richard Guilder Graduate School, AMNH) and Austin Hendy completed extensive field work in Southern California (Santa Barbara, Santa Maria areas) for Alexandra's dissertation (at right).

Marine Biodiversity Center

On March 22, the Marine Biodiversity Center, Crustacea, and Citizen Science hosted a field trip to King Harbor for museum staff. This outing gave staff from non-R&C departments an opportunity to experience the amazing di-



versity of marine life right here in our back yard first hand. Live specimens were collected from the Yacht Club floating docks and brought back to Redondo Beach's *SEA Lab* where scientists and non-scientists alike worked together to sort and identify marine invertebrates from their own dock scrapings. Fun was had by all — except the sea squirts that got used as supersoakers!

UNRC

SuperProject backyard installations

On March 30, Miguel Ordeñana and Lisa Gonzalez installed Malaise traps, camera traps and bat detectors at Super+ backyard locations.

Amargosa River BioBlitz

On April 7–9, Brian Brown, Greg Pauly, Miguel Ordeñana, Giar-Ann Kung, Bree Putman, Weiping Xie, Jane Li, and Estella Hernandez attended the 2017 Amargosa River BioBlitz organized by The Nature Conservancy and the Bureau of Land Management. The BioBlitz focused on documenting the unique biodiversity of the Amargosa River. Results of these surveys are helping to inform land management decisions and conservation strategies for The Nature Conservancy and also helping to inform long-term management by the BLM for the Wild and Scenic portions of the River.



In addition to numerous observations posted to iNaturalist, NHMLA staff returned with a number of specimens. Greg and Bree collected 24 specimens documenting the native and nonnative herpetofauna of the Amargosa Region. The entomology team also brought back a large number of specimens that were collected during the BioBlitz as well as a number of

specimens collected with Malaise traps that were set up in advance of the Bio-Blitz. The Malaise trap samples were then sorted during the newly developed *Fly School.*

Weiping Xie taking a breather and scoping the area!

Brian Brown and Giar-Ann Kung meticulously searching for phorid flies.



City Nature Challenge field work April 17

Richard Smart and Miguel Ordeñana surveyed Abalone cove for the City Nature Challenge.

SnapShot Cal Coast — Point Fermin scouting trip May 27

Lila Higgins and Richard Smart joined DISCO staff for a tidepooling reconnaissance at Point Fermin, in preparation for the SnapShot Cal Coast events on June 25–26.



SnapShot Cal Coast at Point Fermin.

Catalina Island Herpetofaunal Surveys — June 12–14



Greg trying not to fall into Haypress Reservoir, Catalina Island while setting a turtle trap.

Greg Pauly joined Catalina Island Conservancy biologist Julie King on Catalina Island to document the introduction of nonnative Red-eared Slider Turtles and assess how their distribution on the island has changed with the drought. Greg and Julie first studied this species on Catalina in April 2013, and Greg was re-visiting the Island to see how the turtles fared during the drought. Turtles appear to have died out at two of the three reservoirs where they were found prior to the drought; both of these reservoirs were dry for over three years. However, Redeared Sliders still occur at the largest reservoir on the island, which held water throughout the drought. These results highlight one of the few benefits of drought in California, which is that nonnatives fare much worse than the native species that have evolved in a Mediterranean climate, for which droughts are common. Thus, droughts do a good job of getting rid of

some of our nonnative species, especially those that only survive in our Mediterranean climate because people have added so much water to our landscapes.

Greg and Julie also surveyed for Pacific Treefrogs in an isolated canyon on the west end of Catalina Island. The west end of Catalina Island is quite dry and has far less amphibian activity than the wetter east side of the island. Greg and Julie surveyed a rarely visited canyon and found a huge treefrog population. Collected samples will

now be used in genomic analyses to understand the colonization history of the island and connectivity amongst other frog populations scattered across Catalina.

Mojave Desert Lizard Re-surveys — May 18-30

Greg Pauly and field assistant Riley Williams joined five colleagues from the University of Hawaii and University of New Mexico to re-survey historical collecting sites in the Mojave Desert. In the early 1960s, Erik Pianka conducted extensive fieldwork at five sites in the Mojave Desert of California and southern Nevada. All specimens from his surveys were deposited at NHMLA. Over the past three years, the NHMLA-UH team has re-visited these sites to examine changes in lizard abundance, morphology, and reproductive condition. Although only a little more than 50 years have passed since the original surveys, the area has experienced increasing temperature and aridification with climate change as well as having been im-



Prepping specimens in the desert often involves finding creative ways to avoid the mid-day heat. At Red Rocks Canyon State Park in the western Mojave, the field team takes shelter in a grotto. Clockwise from left: Anthony Barley (U Hawaii), Riley Williams (NHMLA), Amber Wright (U Hawaii), Levi Gray (U New Mexico), Brittney White (U New Mexico), and Bob Thomson (U Hawaii). Photo by Greg Pauly (NHMLA).

pacted by nonnative grasses that are becoming increasingly abundant in the western Mojave. Changes in both lizard species occurrence and abundance have already been found by the team, and the morphological analyses are now underway. This year, the surveys resulted in 194 specimens and 199 tissue samples brought back to the NHMLA.

> May in the desert sometimes means weather swings. Here the survey team is trying to stay warm and motivated on an unusually cold morning. Left to right are Bob Thomson, Anthony Barley, Greg Pauly, and Amber Wright.



Meetings, Workshops, and Presentations

Anthropology

NHMLA Journeys

On May 6th, geographer, biologist, anthropologist, author, and professor Jared Diamond gave a lecture in the African Mammal Hall for a *Fellows in Focus* event centered around *NHMLA Journeys*, NHMLA's new travel program. The first trip of this new program will to Papua New Guinea and the Solomon Islands, places very familiar to Jared Diamond due to his extensive research in the area. He provided the attendees with a thorough description of the land and its people offering details of his past experiences and preparing them for what they can expect on their travels if they decide to join.



As an added enticement, and because we have an extensive New Guinean collection onsite, KT Hajeian presented a selection of objects from the Ethnology collections. Jared Diamond stated in his presentation that New Guinea is "the most interesting place on the planet" because it holds all the different ecological zones that exist between the equator and the arctic within one small area as a result of its extreme elevation changes. For this reason, New Guinea's material culture is also one of the most interesting on the planet, exhibiting extraordinary creativity in the use of materials and in the techniques used to adapt to such a varied environment.

Conservation

Marina Gibbons attended the 45th Annual Meeting of the American Institute for Conservation from May 30 to June 2, the theme of which was innovation in treatments. She presented a poster titled *Evaluating (poly)ethylene vinyl acetate (EVA) adhesives for use in wax conservation,* and visited the conservation laboratory at the Field Museum of Natural History. Marina also previewed the *Tattoo* exhibition at the Field in preparation for its planned installation at NHMLA later in 2017.

Dinosaur Institute

Nate Smith traveled to the Field Museum of Natural History in Chicago, IL on May 4–9 for an Exhibit Design Preview related to the *Antarctic Dinosaurs* traveling exhibit, and to continue research on fossil vertebrates from Antarctica.

Nate Smith presented a seminar, *Dawn of the Dinosaurs: Drivers of Early Dinosaur Diversification and Biogeography in the Early Mesozoic*, to the Department of Ecology and Evolutionary Biology at UCLA on April 26th.

Nate Smith traveled to the USC Health Sciences Campus on May 1st to work on a collaborative grant with USC faculty aimed at establishing a "Paleosciences Research Center" to support paleontology research collaboration, seminar series, student training, and educational outreach.

April 7, 2016 Rachel Racicot gave a talk entitled *Digital dolphins and the evolution of novel sensory adaptations* at Vanderbilt University, Department of Earth and Environmental Sciences Seminar Series, Nashville, TN.

Martin Sander and Doug Goodreau traveled to Reno, NV on April 7th to participate in the *Ichthyosaur Expedition Party*, a fundraiser in support of Martin's field program in central Nevada that was hosted by the Great Basin Brewing Company. Martin and Doug gave a presentation and answered questions for the several hundred attendees.

DISCO

The Museum's Diversity Initiative for the Southern California Ocean (DISCO) project co-hosted a taxonomic workshop led by pycnogonid (sea-spider) world expert Dr. Bonnie Bain. Over Dr. Bain's weeklong visit, in addition to identifying numerous specimens of the local sea-spider species for use in the DISCO DNA barcoding efforts of local Southern Californian invertebrates, she also worked with Adam Wall to work up the museum's vast historical sea-spider collection, which contains at least 3 new genera discovered that are new to science! Dr. Bain is planning a return trip for next summer to continue working on the Museum's one-of-a-kind collection of sea-spiders.

Entomology

NHMLA was the host institution for the first-ever Diptera Course, *Fly School*, held near Wrightwood, California. The course was a stunning success. Twenty-one students, mostly Ph.D. candidates, but also a number of collections staff, from 11 countries, participated in the two-week event, organized by the Entomology Department.

Besides lectures by six taxonomic experts on the various groups of Diptera, the students were also taught techniques in specimen preparation, participated in fieldwork, and learned about methods in illustration, molecular systematics, larval study, and many other subjects. The course was held at Harmony Pines Camp, near Wrightwood, an area with several life zones nearby. During *Fly School*, students collected in the Mojave Desert, high-ele-

vation hilltops and subalpine valleys, aquatic environments, and the closeby oak-pine forest at the course site.

Some interesting collections were made during the two weeks, including a new species of *Microsania* "smoke flies" (Platypezidae), specimens of three rare "A"-families (Apsilocephalidae, Apystomyiidae, and Atelestidae), unusual empidoids (*Oreogeton*, microphorine Dolichopodidae, Brachystomatidae), giant flower-loving flies (*Rhaphiomidas*), rodent bots (*Cuterebra*), and many others. In samples brought to *Fly School* for additional sorting, an extremely rare *Afrocamilla* (Camillidae), as well as a possible new genus of Carnoidea (we don't know which family — the instructors were stumped!) were found.



Fly School participants after a great day in the field.

We like to think that all students learned a tremendous amount about Diptera — certainly the instructors did — as well as about each other and the dipterological community. All worked extremely hard on their collections, with most reaching or nearing the goal of 50 families.

Fly School was generously funded by dipterists Dr. F. C. Thompson and Dr. Terry Whitworth, the Smithsonian Institution's Williston Fund, and Diane Naegele (LACM Board of Trustees).

Fly School Organizer — Emily Hartop

- *Fly School Instructors* Dr. Dalton Amorim, Dr. Keith Bayless, Dr. Brian V. Brown, Dr. Eliana Buenaventura, Dr. David Grimaldi, Dr. Jeff Skevington
- *Guest Instructors* Dr. James Hogue, Dr. Brad Mullens, and Dr. Doug Yanega
- *Fly School Participants* Yuchen Ang, Chris Cohen, Ayman Elsayed, Diego Fachin, Lisa Gonzalez, Emily Hartop, Jon Peder Hjertenes Lindemann, Lance Jones, Giar-Ann Kung, Alan Lanford, Xuankun Li, James Lumbers, Katherine Noble, Ronniel Pedales, Thalles Lavinscky Pereira, Gabriela Pirani, Courtney Richenbacher, Erick Rodriguez, Arianna Thomas, Alejandro Vargas, Maria Wong



The Fly School lab.

History

Kristen Hayashi, Exhibits Research & Content Specialist, presented a paper on the Japanese Hospital in Boyle Heights as part of a panel entitled *Challenges to Formal Designation in Marginalized Communities* at the California Preservation Foundation Conference in April. Additionally, she spoke on community engagement as part of a panel at the Asian Pacific Islander Americans in Historic Preservation Symposium in April.

Invertebrate Paleontology



Katy presents her Innovative Inventory talk at SPNHC.

Katy Estes-Smargiassi travelled to Denver, CO for the annual meeting of the Society for the Preservation of Natural History Collections. She presented a talk on Invertebrate Paleontology's stratigraphic inventory project, as well as a poster on the department's Collections in Support of Biological Research project, *Cretaceous Seas of California*.

Austin Hendy and Lindsay Walker presented in the Western Society of Malacologists meeting held at the University of Southern California and NHMLA. In total, five posters were presented. Austin also ran a field trip for conference participants around the Palos Verdes Peninsula.

Mineral Sciences

Topical Session Organizer & Co-Chair (2017) Mineralogical Crystallography, American Crystallographic Association Annual Meeting, New Orleans, Louisiana, May 26-30, 2017.

Balayan, A., Vendetti, J.E. and Celestian, A. (2017) Exploratory studies of chiton eye lenses: their morphology and composition. Abstracts with Program, Western Society of Malacologists, Los Angeles, California, June 20–22, 2017.

UNRC

SuperProject Trainings (March 12, March 18, and March 19).

UNRC staff trained 120 SuperProject participants on iNaturalist and how to conduct surveys in their neighborhoods. Each of the four training sessions lasted about four hours and involved both classroom and outdoor training. This year's cohort of SuperProject participants are from the San Fernando Valley and South L.A. Although we are only 2.5 months into the year-long project, participants have already contributed over 4,500 observations to iNaturalist!





Miguel Ordeñana provides photography tips during the SuperProject training.

Greg Pauly begins the classroom portion of the SuperProject training.

L.A. Premiere of The Cat that Changed America at UCLA on March 16.

Miguel Ordeñana attended this premiere and participated in a Q&A after the screening.

Marine Biodiversity Center/DISCO Dock Sampling on March 22

The Citizen Science Program assisted MBC with a dock sampling outreach program for NHMLA executive staff at the King Harbor Marina in Redondo Beach. Participants learned how to scrape floating docks to collect marine invertebrates. Specimens were taken to the nearby *SEA Lab* so they could be sorted and identified.

Participants learned how to scrape floating docks to collect marine invertebrates.



Fellows in Focus The Cat that Changed America screening on March 25

Miguel Ordeñana participated in a Q&A session following a private screening at the Laemmle Movie Theater in Santa Monica.

City Nature Challenge April 14–18

The City Nature Challenge was a 5-day competition between 16 cities in the U.S.A. to see which one could document the most nature on the iNaturalist platform. The City Nature Challenge was organized by Lila Higgins of NHMLA and Alison Young of the California Academy of Sciences.

Total observations across 16 cities: 124,092 Total L.A. Observations: 18,152 (3rd Place) L.A. ranked 1st in number of participants by a large margin: 1,034 participants



The City Nature Challenge logos were designed by NHMLA's creative services department.

City Nature Challenge: Hansen Dam Meet-up (April 15)



(Lila Higgins, Richard Smart, Miguel Ordeñana, Greg Pauly, Bree Putman, Kimball Garrett)

Participants split up into groups and surveyed different regions of the Hansen Dam area for wildlife (see photo at left). The observations contributed to the City Nature Challenge.

Stats: 40 participants, 1,143 observations, and 215 species

City Nature Challenge: Nature Egg Hunt (April 16) (Richard Smart, Lila Higgins, Maria Wong, Jann Vendetti)

Participants learned about different types of animal eggs and split into two groups to add observations to the City Nature Challenge, and to try and find different eggs.

Stats: 20 participants, 271 observations, and 86 species.

City Nature Challenge: BioBlitz at Esperanza Elementary (April 18)

(Richard Smart, Lila Higgins, Miguel Ordeñana)

The citizen science office collaborated with principal Brad Rumble and a class of thirty 5th graders. The citizen science office provided a quick training followed by a survey of the campus, including their schoolyard habitat.

Stats: 30 participants, 24 observations.

SnailBlitz 2017, Feb 1 – March 31

Jann Vendetti and the Citizen Science Program ran the SnailBlitz from Feb. 1 – March 31, 2017. Angelenos were invited to send NHMLA photographs of the snails and slugs they encounter throughout Southern California. The initial goal of 1,000 images was raised to 1,500 based on the high level of participation.



Citizen Science & Suds April 13 — Can Citizen Science Save the World?

(Lila Higgins, Richard Smart, Miguel Ordeñana),

115 people attended a panel discussion moderated by Lila Higgins, featuring Brian Brown and speakers from the Public Lab for Open Technology and Science and the Planetary Response Network/Zooniverse.





Bird L.A. Day, May 6 (Kimball Garrett, Lila Higgins).

As part of a city-wide effort, Kimball and Lila led 21 people on a birding program at Hansen Dam for Bird L.A. Day (photo at left). 51 records were recorded.

Citizen Science Association Conference in Saint Paul, MN (May 17 - 20)

Lila Higgins, Miguel Ordeñana, and Richard Smart attended and presented.



Lila Higgins Co-chaired a Citizen Science Day Working Group meeting, and presented *Building citizen science access, equity, and engagement beyond the museum walls: A case study of library-museum partnership in Los Angeles* as part of a symposium on *Building Engaged Citizen Science Communities Through Libraries.*

Miguel Ordeñana presented *Exploring Los Angeles urban biodiversity: A*

Lila Higgins co-chaired the Citizen Science Day Working Group museum-wide initiative as part of a meeting with Alison Young (California Academy of Sciences) and Catherine Hoffman (Sci Starter). symposium on Using Citizen Science and Deep Participation to Support Ur-



ban Diversity, and presented a poster on SuperProject Backyard Bat Survey: Museum Scientists Team up with Homeowners to Investigate Backyard Mammal Ecology.

Richard Smart (at left) presented a poster on A Year of

Project Evaluation: Using the Port Townsend Marine Science Center Rubric at the Natural History Museum of Los Angeles County and presented a poster on Meeting Participants Where They Are At: Accepting Submissions via E-mail, Social Media, and Text Messaging.



LA County Parks & Rec Training, May 31 (Lila Higgins, Richard Smart, Miguel Ordeñana).

Citizen Science Program trained the Parks & Recreation staff (at right) on our citizen science projects and taught them how to use iNaturalist. Additionally, Lila led a training on nature play.

RASCalsBlitz June 1 – July 31

From June 1 – July 31, 2017, Greg Pauly and the Citizen Science Program invited people to send in photographs of reptiles and amphibians they encounter in Southern California. The goals are to reach 2,000 photo-documented observations from 250 participants by the end of RASCalsBlitz 2017. By mid-June, RASCalsBlitz is well on its way to success with 700 observations from 220 individuals.



Stats for RASCals-Blitz as of June 15.







Vertebrate Paleontology

iDigBio Workshop

During 2–3 May 2017, Vertebrate Paleontology Assistant Collections Manager Vanessa Rhue attended a workshop titled *Digital Photography 101: Managing Cameras, Lighting, and Workstations for Specimen Imaging*. The workshop was sponsored by iDigBio (Integrated Digitized Biocollections) and was hosted by staff at the University of Florida, Gainesville. The presentation leaders Gil Nelson, Joanna McCaffrey, Zach Randall, Jeff Gage, Stephanie Leon, and Kristen Grace covered topics from camera basics to advanced techniques, image composition, imaging workstations, software and post processing, as well as image metadata management.

The workshop was attended by a variety of biology professionals and students. One of the highlights was the in-

terdisciplinary interactions with other museum departments. An entire afternoon was dedicated to rotating tours of the herbarium, mammals, fish, paleo vertebrates, invertebrates, and lepidoptera col-



The photo set-up in the Lepidoptera collections at The Florida Museum of Natural History.

lections, where we were able to observe photo imaging stations, demos, and engage in discussions about equipment set-up and workflows. A field trip to Sweetwater Wetlands Park afforded the opportunity to apply the workshop training tips to wildlife photography.



An image taken during the paleo vertebrates collections tour of a Barbourofelis loveorum lower jaw from the late Miocene (Alachua Formation) Love Bone Bed site.

Vertebrate Paleontology, Dinosaur Institute, and Rancho La Brea

The Association for Materials & Methods in Paleontology Annual Meeting

Paleontology staff from the Museum were well represented at the 10th annual meeting of the Association for Materials & Methods in Paleontology, held 18–22 April 2017 in Austin, Texas. The meeting offered participants the opportunity to tour the Harry Ransom Center Archive, Library, and Museum and enroll in pre-meeting workshops such as *CT Scanning, Histology,* and an *Ethics Symposium*. Vertebrate Paleontology Assistant Collections Manager Vanessa Rhue gave a platform presentation entitled, *Shipshape loans: the art of selecting materials for housing fossils sent on institutional loan* and Vertebrate Paleontology Preparator Alan Zdinak co-led a workshop on *Lab Design*. Participants could also choose to attend a field trip to either Waco



Participants test the working properties of various adhesives and fillers during a Gap Filling Workshop led by Marilyn Fox of the Yale Peabody Museum at the Vertebrate Paleontology Laboratory, University of Texas at Austin.

National Monument and Inner Space Cavern or Dinosaur Valley State Park. Dinosaur Institute Preparator Erika



Canola and Rancho La Brea Collections Manager Gary Takeuchi attended the meeting for the first time. Museum volunteers Corinna Bechko, Karen & Evan Kent, and Herb Schiff also attended. Evan Kent contributed his law expertise during a presentation at the *Ethics Symposium*. A *post mortem* was given on 16 May 2017 to Museum colleagues and volunteers in the Times Mirror Room.

The skull of Crotalus ornatus visualized and segmented using CT data processed by Avizo. The pre-meeting CT Scanning Workshop was led by Dr. Jessie Maisano and Dr. Matthew Colbert at The University of Texas High-Resolution CT Facility.

External Funding

Invertebrate Paleontology with Education

Austin Hendy, Katy Estes-Smargiassi, Lindsay Walker, and Molly Porter received funding from the Paleontological Society for their K–12 outreach initiative, *Project Paleo*.

> Project Paleo kits roll-out at Home School Day at the La Brea Tar Pits and Museum



MBC

USC Undergraduate Research Associates Program

The Marine Biodiversity Center/DISCO Project was awarded \$4800 for 2017/2018 student research support. We competed with 123 submissions, a record number, almost 18% more than last Spring. Support will be for two students and cover a stipend and research costs.

Mineral Sciences

Recent funding of a research project by a private donor has enabled us to hire a research intern for the summer. Maddi Crane from Occidental College will be working on a project to better understand how epsomite crystals grow and change in different climates/environments. This is an important project from a fundamental scientific perspective, but it also has direct application to planetary geology. Loads of magnesium sulfate deposits have been found on Mars, but we don't know for sure which minerals are present. Maddi's work should shed new light on the types of climates, as indicated by mineralogy, that could have existed on Mars in the past.

Celestian, A. J. (2017) *In situ* Raman spectroscopy study of the hydration/ dehydration of magnesium sulfate hydrate crystals. Funded by M. Scott, private donor.

Madi collecting data to monitor the molecular processes of magnesium sulfate crystallization using the Raman microscope.



UNRC

April, 2017: Miguel Ordeñana was awarded a scientific product grant from the Bob Berry Fund for bat research. He was awarded bat echolocation analysis software and a portable bat detector that will be useful for both research and outreach. The bat analysis software will be especially useful and will allow me to work more efficiently. The total monetary value of the equipment is \$2,131.

Public Outreach

Anthropology

Nature Fest

At this year's Nature Fest, Anthropology presented a collection of baskets made by Native Americans from California. The visitors learned about the different kinds of plants used to make the baskets and looked at images of those plants in their natural state.

The basket culture of California is particularly rich because many Californian tribes were semi-nomadic, moving with the seasons to gather plants or hunt, and they did this without beasts of burden. Baskets therefore offered a lightweight solution for carrying goods and were thus essential to nearly every tribe's livelihood. At the same time, the fact that California's long vertical shape crosses many different geological zones meant that many different tribes co-existed without interfering too much with the other's resources. This created a unique variety in shape and design within one state and a wonderful way to show the visitors the use of different regional plants.



Common materials and tools used to make baskets

History

At the Scavenger's Safari on May 6th, Collections Managers Brent Riggs and John Cahoon showed photographs, maps and ephemera from the Seaver Center illustrating the colorful history of Exposition Park, from its early days as Agricultural Park with a horse racing track and Theodore Payne's California Wildflower Garden, to the development of the Park into a cultural destination for the community with the construction of the Natural History Museum, the State Exposition Building, the State Armory and the Sunken Rose Garden.

An early postcard of NHMLA from the Seaver Center collection.



Taste of History

NHMLA Fellows joined History Collections Manager Beth Werling for a unique *Taste of History* dinner on April 29th at the *History for Hire* prop house in North Hollywood. Fellows were able to pose for photos with props from



Shown is Beth Werling giving her usual captivating presentation.

New Members Reception

La Land, Titanic, and Pirates of the Caribbean while snacking on appetizers before taking a tour of the 33,000 square foot prop house which specializes in providing historic props to films, television shows, music videos, commercials, and other entertainment venues. Following the tour, while Fellows were dining *al fresco* outside the facility, Beth Werling gave a presentation on the ways that the History Department interacts with various Hollywood stakeholders — prop houses, studio archives, filmmakers, and historic preservationists. As the Fellows discovered, the History Department's work isn't confined to Exposition Park.

New NHMLA members were invited to a special reception and opening of the new exhibit *Extreme Mammals* on May 26th. As an added bonus, several curatorial departments displayed collection items in the African Mammal Hall that the public doesn't normally get to view. The History Department exhibited some examples of "Extreme Fur" which included feet from a gorilla costume made of Mongolian Yak hair and synthetic fibers, a beaver skin top hat from the 1860s, a miniature gorilla model used in movies covered with domesticated cat fur, a pair of boots lined in monkey fur and the most popular item of all, President Thomas Jefferson's hat which is lined in bobcat fur. New members were asked to guess what fur was used to make each artifact. Kudos to Collections Manager Beth Werling for organizing the temporary show of these History artifacts.

"Mysteries at the Museum"

In May an episode was rerun of *Mysteries at the Museum* which focused on an armband from Charlie Chaplin's *The Great Dictator.* The film crew shot the episode at the History Department's Collection Facility in Carson. The series, which is sponsored by National Geographic, airs on the Travel Channel. Negotiations are currently underway to film a segment on Jean Harlow at the museum. Because the actress died at the age of 26 in 1937, few artifacts survive from her short life. The History Department is fortunate to have one of the dressing robes she wore for a series of publicity shots taken by MGM studios. History Collections Manager Beth Werling spoke on camera for the first episode, and she will be on hand again for the upcoming Harlow episode.

History and Anthropology

First Fridays

History and Anthropology combined their efforts for a joint "behind-the-scenes" presentation at the June 9th First Fridays event. To go along with the theme of the evening, *History on Your Plate*, Betty Uyeda, John Cahoon, and Brent Riggs created displays of historic photographs, menus, and dining invitations from the Seaver Center collections with connections to various locations in the Los Angeles area. Many of the visitors learned something new about already familiar locations, like the existence of an extravagant restaurant with theatrical entertainment



called the "Paris Inn" where the Police Administration Building stood at Parker Center, and the ridiculously low price of \$1.75 for a Chicken Dinner at Knott's Berry Farm in 1948.



The Paris Inn, c. 1930. This restaurant was located at Parker Center before closing in 1950 to make way for the building of the Police Administration Building.

KT Hajeian followed by presenting a selection of objects from the Archaeology collections which were excavated in 2009 in the process of building the museum's new carpark. These objects mostly date and relate to the activities of Agricultural Park and the nearby residences from the late 19th to early 20th centuries. The presentation included various condiment bottles, food storage containers, butchered faunal remains and of course, containers for alcohol probably consumed while looking to win big at the races.

A complete whiskey flask, c. 1880 – 1910.

Invertebrate Paleontology

Invertebrate Paleontology staff and volunteers featured fossil insects and other arthropods (*Giants of the Paleozoic*) at Bug Fair. Austin Hendy and Lindsay Walker shared ammonites and fossil insects with museum members for Scavenger Safari. Austin Hendy, Katy Estes-Smargiassi, and students demonstrated fossil sorting for families at Homeschool Day at La Brea Tar Pits. Austin Hendy led a field trip to the San Pedro tidepools for San Pedro Co-op School.

The IP Bug Fair team stands in front of the Giants of the Paleozoic.



DISCO at the Ball

The Dino Ball is a showcase for NHMLA, an opportunity to thank our many donors, and a place to showcase a few of our innovative projects. This year DISCO (Diversity Initiative of the Southern California Ocean) was invited to share its research program addressing biodiversity and climate change during the *Mission Moments* of the event. Armed with examples from our collections, DISCO showcased its incorporation of NHMLA's natural history knowledge, expertise, and collections with modern genetic technology, and involving commercial and applied elements, citizen science, education and job-training internships with the amazing local biodiversity, our changing environment, and new sustainable food resources.

Marine Biodiversity Center

Sometimes we make a difference

One hundred thirty 3rd graders from Armada Elementary School visited the NHMLA on May 9th with 15 of them getting a special peek into the MBC/Collaboratory. A few years ago, a 9 year old from Armada Elementary visited the MBC/Collaboratory and peeked into a microscope with his parents and siblings. He was so excited by the experience that he rallied parents, teachers, and classmates to get to the NHMLA. The kids and parents sell cookies, lemonade, and fundraise to hire busses to get them here from the Moreno Valley — a nearly 3 hour bus trek each way. These kids are committed to science.



Bathynomus, the giant isopod — always a favorite.

UNRC

On March 17, Jann Vendetti and the interns from the Glendale Community College R&C internship program did a mini snail and slug bioblitz at 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.

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*.

Miguel Ordeñana shared stories about non-human urban mammal bat and carnivore mothers (reproduction and behavioral ecology) and how NHMLA 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.

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.

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.

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



Student Mentoring and Research

Conservation

Tania Collas and Marina Gibbons welcome summer intern Gillian Holzer to the Conservation Lab. Gillian is currently pursuing her B.A. in Art Conservation at Scripps College and will be assisting the NHMLA conservators with treatments on a variety of materials.

Dinosaur Institute

Trevor Fisher arrived in Los Angeles on June 5 and hails from Western New York. He is joining the Dinosaur Institute for 10 weeks this summer, which will include the 2017 Haaga Dinosaur Expedition to the Gnatalie Quarry in Utah. Princeton Internships in Civic Service or PICS provides annual opportunities to Princeton University Undergraduates to intern in various departments here at the NHMLA.

Dinosaur Institute volunteer Larkin McCormack was accepted into the graduate program in the Department of Earth and Environmental Sciences at the University of Iowa to work with paleontologist Dr. Chris Brochu.



Trevor Fisher, Princeton University, PICS Intern 2017.

Invertebrate Paleontology



Lindsay Walker and Javaria Aziz stand with Javaria's poster at WSM.

Javaria Aziz, Cynthia Fait, and Megan Huh, Invertebrate Paleontology student interns and alumni, presented posters at the Western Society of Malacologists meeting.

Mineral Sciences

Working with Malacology at NHMLA

Did you know that chitons have eyes? Not many people do, and these eyes have crystalline lenses made of aragonite. In collaboration with Curator Jann Vendetti and her students, we are working on new ways to determine the chemical and mineralogical makeup as well as the functional role of these lenses.

This is a really exciting project combining mineralogy with biology.

Vertebrate Paleontology

This past spring the Vertebrate Paleontology department was pleased to have Aimee Montenegro as an undergraduate intern from Biola University. Aimee is interested in pursuing a career in a museum setting and wished to gain a better understanding of collections management, curation, and conservation. Aimee volunteered over 120 hours during the months of February – June 2017. She assisted Vertebrate Paleontology staff with a variety of lab and collections projects such as the repair and stabilization of probosidean bones in

Aimee Montenegro sews darts into polyester felt so that the archival holder conforms to the shape of the mammoth limb bone beneath the felt.



our laboratory, creating archival clamshell holders for large specimens, checking in return loans, curating an incoming collection of fossil fish, reptiles, birds, and mammals, as well as capturing digital images of recently cataloged specimens. The Vertebrate Paleontology staff thank Aimee Montenegro for her dedicated service to our collections and look forward to welcoming her back in the fall after her time abroad this summer at the Museo Egizio in Turin, Italy.

Aimee is proud of her finished curation project from Owens Lake — a Pleistocene locality from Inyo County that yielded fossil fish, reptiles, birds, and mammals.



Abigail Glass of Murray State University, Kentucky visited the Vertebrate Paleontology collections 19–23 June as part of her undergraduate research project on a subfamily of oceanic dolphins known as Globi-



cephalinae. Abby is working with Postdoctoral Research Scientist Dr. Rachel Racicot to identify and select fossil globicephaline periotics for CT scanning so they can merge their data set with other previously scanned extant taxa. Abby is a recipient of the NHMLA Collections Study Award program.

Abby Glass (lower left) and Dr. Rachel Racicot (standing) select an inner ear bone of a toothed whale for study.

Volunteers and Research Associates

Archives

This summer the archives will host two student volunteers. Alys Pitt-Leif will join us from Pasadena City College where she is pursuing certification in Library Digitization Skills. Tristan Willenburg will join us from UCLA where he is working on his MLIS degree. Both students will be working in tandem on a project to preserve, digitize, and describe historical photos from our collection under the supervision of museum archivist, Yolanda Bustos.

Invertebrate Paleontology

The Invertebrate Paleontology team continues to grow. In addition to our three full-time staff members, we currently have 3 research associates and 14 volunteers and interns (including 10 students and recent graduates), who are supporting NSF-funded projects.

Vertebrate Paleontology

The Vertebrate Paleontology department welcomes two new volunteers to our department, Razelle Alwaili and Hanna Baek. Razelle is currently an undergraduate student at UCLA where she is pursing a degree in Anthropology. Razelle has been helping our digitization team scan field note books — an invaluable asset to our specimen data records. In her spare time she enjoys reading, learning the Japanese language, and playing strategy games. Hanna joins us twice a week to assist with specimen re-housing projects and archive digitization. Since starting

with us in April she has completed a preliminary inventory of our accessory data files and is helping us update the storage conditions of our Pleistocene materials. Hanna holds a B.S. in Wildlife Biology and will be pursuing graduate school in the San Francisco Bay Area this fall. When she is not at the museum, she enjoys birdwatching, blogging, watching documentaries, as well as doing arts and crafts.





Razelle Alwaili assists us weekly to scan field note books containing important locality data about vertebrate fossils in our collections.

Hanna Baek (at left) and Amanda Wall (at right) work on re-housing a drawer of artiodactyl fossils from Lake Chapala, Jalisco, Mexico.

Distinguished Visitors

Invertebrate Paleontology

Alexandra Buczek (Ph.D. candidate) of the Richard Gilder Graduate School at the American Museum of Natural History has spent May–June working with Austin Hendy on field-based sampling, mollusc systematics and isotope geochronology of Pliocene fossils from Southern California. Other visitors during the past couple of months included Jocelyn Sessa (Drexel University), David Bottjer (USC), Adam Huttenlocker (USC), Liz Nesbitt (Burke Museum, University of Washington), Gabriel Santos (Raymond Alf Museum), Brendan Anderson (Cornell University), and Sanden Totten (KPCC).

DISCO

During Heal the Bay's yearly staff retreat, held at NHM in late June, 35+ Heal the Bay staff visited the Museum's Diversity Initiative for the Southern California Ocean (DISCO) project to learn more about the power of the two main research tools being utilized by the DISCO project: DNA barcoding and environmental DNA, both of which have direct applicability to helping protect our local beaches and oceans.

Vertebrate Paleontology

On 29 March 2017, Dr. John Minch visited our Vertebrate Paleontology collections. He made a donation of air abrasive powder and also provided additional locality data for our records.

During 8–9 May 2017, Dr. Eduardo Jiménez-Hidalgo and Dr. Bruce Lander continued their research on early Arikareean materials they had examined in late December of last year.

On 17 May 2017. Agnese Lanzetti, a Ph.D. candidate in the Joint Doctoral Program in Evolutionary Biology at San Diego State University and University of California, Riverside visited our collections to take digital photos of aetiocetid skull casts in our collections for photogrammetry purposes.

On 19 May 2017, Eric Scott visited our collections to examine Pleistocene horse material from Gypsum Cave for a pending manuscript.

On 19 May and 9 June, Emily Burnett of Glendale College visited our collections to study Trichiuroid fishes, along with her advisors Dr. Francisco Javier Gago and Dr. J.D. Stewart.

During 22–25 May 2017, Scott Kottkamp of South Dakota School of Mines came to study borophagine dogs as part of his graduate research.



Emily Burnett (center) examines a fossil Trichiuroid specimen while Dr. J.D. Stewart (left) and Dr. Francisco Javier Gago (right) practice taking accurate measurements with calipers.



On 2 June 2017 Damian Ruiz-Ramoni from the Instituto Venezolano de Investigaciones Científicas, Venezuela, currently a postdoc at Instituto Geología (UNAM) in Mexico City, came to



study our fossil specimens of dire wolf from the San Josecito Cave, Maricopa, and McKittrick localities.

Damian Ruiz-Ramoni studies fossil dire wolf dentaries from a Rancholabrean locality known as San Josecito Cave in Nuevo Leon, Mexico.



During the entire month of June, Boyang Sun, a graduate student of Ray Bernor's at Howard University is studying our collection of Hemphillian horses from localities such as the Rincon and Yepomora faunas of Chihuahua, Mexico.

Boyang Sun holds a Pliohippus mexicanus maxilla, which, after further preparation, confirmed the composite nature of the skull and teeth as belonging to different individuals.

During 12–13 June, graduate student James Proffitt returned to our collections to examine procellariiform specimens, including holotypes and figured specimens of *Fulmarus hammeri*, *Fulmarus miocaenus*, *Diomedea milleri*, and *Diomedea californica*.



James Proffitt holds up the distal end of a Tarsometatarsus from a large seabird known as Diomedea californica from the middle Miocene Round Mountain Silt.

Also on 13 June, Dr. Chris Brochu, Associate Professor in the Department of Geoscience at the University of Iowa dropped in for an impromptu visit to re-photograph Cenozoic crocodyliform specimens that he examined nearly 20 years ago.

Dr. Chris Brochu of the University of Iowa.

During 13-15 June Dr. Oscar Carranza Castañeda of the Universidad Nacional Autónoma de México visited our collections to examine various proboscidean specimens, including *Rhynchotherium edensis* material from Chihuahua.





Dr. Oscar Carranza Castañeda accompanied by his wife who is shown assisting him with some Rhynchotherium teeth from Arroyo Amajac, Hidalgo, Mexico.

Recent Publications

- Blumenthal, S. A., N. E. Levin, F. H. Brown, J-P. Brugal, K. L. Chritz, J. M. Harris, G. E. Jehle, & T. E. Cerling. 2017. Aridity and hominin environments. Proceedings of the National Academy of Sciences. DOI:10.1073/ pnas.1700597114 June 26, 2017.
- **Buscalioni, A. D.** 2017. The Gobiosuchidae in the early evolution of Crocodyliformes. Journal of Vertebrate Paleontology. DOI: 10.1080/02724634.2017.1324459.
- Chukanov, N.V., Aksenov, S.M., Rastsvetaeva, R.K., **Kampf, A.R.**, Mohn, G., Belakovskiy, D.I. and Lorenz, J.A. (2016) Riotintoite, Al(SO₄)(OH)·3H₂O, 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, ZnFe³⁺₅(PO₄)₄(OH)₅·6H₂O, 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, Ca₂Mn₂Nb₆O₁₉·20H₂O, 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
- Goman, M., Joyce, A., Lund, S., Pearson, C., Guerra, W., Dale, D., Hammond D., **Celestian, A.** (published online March 1, 2017) Preliminary Results from Laguna Minucúa a potentially annually resolved record of climate and environmental change for the past ≈5000 years in the Mixteca Alta of Oaxaca, Mexico. Quaternary International.

Check out the new R+C News page for more information on this work! https://nhm.org/site/research-collections/news/minerals-climate-past

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, Zn₂Fe³⁺(PO₄)₂(OH)·3H₂O, 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

Kampf, A.R., Adams, P.M., Barwood, H. and Nash, B.P. (2017) Fluorwavellite, Al₃(PO₄)₂(OH)₂F·5H₂O, the fluorine analogue of wavellite. American Mineralogist, 102, 909-915. DOI: 10.2138/am-2017-5948

The paper on fluorwavellite was promoted by the American Mineralogist as a "Noted Paper". This new mineral species turns out to be relatively common in near surface deposits where it serves as a sink for fluorine.



Fluorwavellite crystals from the Wood mine in Tennessee. The field of view is 3.5 mm across.

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(NH₄,K)₉Cl₄][V^{5+,4+}₂(P,As)O₈]₆·n[H₂O,Na,NH₄,K,Cl],, a new mineral with a

mesoporous framework structure. American Mineralogist, 102, 1037-1044. DOI: 10.2138/am-2017-5977

The paper on rowleyite is important because this new mineral species has a crystal structure is a framework with large open channels. Its structure is, in fact, one of the most porous known (even including synthetic compounds), suggesting that it may have important technological uses.

> Rowleyite crystals (black) on mottramite (olive green) and quartz from the Rowley mine in Arizona. The field of view is 0.56 mm across.



- Kampf, A.R., Grey, I.E., Alves, P., Mills, S.M., Nash, B.P., MacRae, C.M. and Keck, E. (2017) Zincostrunzite, ZnFe³⁺₂(PO₄)₂(OH)₂·6.5H₂O, 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, CaMn²⁺₅(V₂O₇)₃·12H₂O, 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., Dini, M. and Molina Donoso, A.A. (2017) Juansilvaite, Na₅Al₃[AsO₃(OH)]₄[AsO₂(OH)₂]₂(SO₄)₂·4H₂O, 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., Rossman, G.R., Ma, C. and Williams, P.A. (2017) Kyawthuite, Bi³⁺Sb⁵⁺O₄, a new gem mineral from Mogok, Burma (Myanmar). Mineralogical Magazine, 81, 477-484. DOI: 10.1180/minmag.2016.080.102

The paper on kyawthuite is of interest because this new mineral species was described from a single faceted gemstone, which remains the only known natural sample of this species.



Faceted kyawthuite gem from Mogok, Myanmar; 1.61 carats; 5.80 × 4.58 × 3.00 mm.

- 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
- Li, G., L. M. Gerhart, S. P. Harrison, J. K. Ward, J. M. Harris, and I. C. Prentice. 2017. Changes in biomass allocation buffer low CO₂ effects in tree growth during the last glaciation. Nature, Scientific Reports 7:43087 DOI: 10.1038/srep43087
- Maciver, M.A., L. Schmitz, U. Mugan, T.D. Murphy, and C.D. Mobley. Massive increase in visual range preceded the origin of terrestrial vertebrates. Proceedings of the National Academy of Sciences 114(12): E2375–E2384 March 2017. DOI: 10.1073/pnas.1615563114
- Mocho, P., R. Royo-Torres, E. Malafaia, F. Escape, and F. Ortega. Sauropod tooth morphotypes from the Upper Jurassic of the Lusitanian Basin (Portugal). Article in Special Papers in Palaeontology. March 2017. DOI: 10.1002/spp2.1075
- 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, Cu₃Mn(OH)₆Cl₂: new members of the atacamite family from Sadamisaki Peninsula, Ehime Prefecture, Japan. Mineralogical Magazine, 81, 485-498. DOI: 10.1180/minmag.2016.080.104

- Perez, V., Pimiento, C., **Hendy, A.**, González-Barba, G., and Hubbell, G., (2017). Late Miocene chondrichthyans from Lago Bayano, Panama: Functional diversity, environment and biogeography. Journal of Paleontology. DOI: https://doi.org/10.1017/jpa.2017.5
- **Racicot, R.A.** 2017. Fossil secrets revealed: X–ray CT scanning and applications in paleontology. In: Tapanila, L. and Rahman, I.A. (eds.), Virtual Paleontology. Paleontological Society Papers 22: 21–38.
- 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

Staff Departures & New Staff

Library

Yolanda Bustos joins the Library as Museum Archivist

Yolanda Bustos joined Research and Collections as the Museum Archivist in late March. Yolanda received her Masters degrees in both Archival Studies and Library and Information Sciences from the University of British Columbia. Most recently, Yolanda comes from the California Academy of Sciences where she served as an archivist and records manager for the last five years. At the California Academy of Sciences she served on multiple grants focusing on access, digitization, and looking at new and dynamic ways to use archival materials in tandem with technology and new research to create an innovative picture of changes to the natural environment. At the Natural History Museum and the Tar Pits, Yolanda will focus on collections stewardship, the preservation of traditional and digital records, systems design, collection management, and outreach under the supervision of chief librarian, Richard Hulser.

Registrar's Office

The Registrar's Office welcomes Assistant Registrar Cassie Vadas! Cassie began working with us in the end of May and will be processing all accessions and incoming research loans as well as other collections transactions. A graduate of the Museum Studies Master's program at George Washington University, Cassie brings experience from her recent nine-month internship in the Getty Museum's Registrar's Office as well as from her internships at the Smithsonian's National Museum of American History, National Museum of Natural History, National Archives and Records Administration, and National Air and Space Museum.



Cassie Vadas, Assistant Registrar.

UNRC

Emily Hartop will be departing from the Museum in June. She was awarded a three-year research grant to continue her work on phorid flies at Station Linné on the Baltic Island of Öland, Sweden. She will also be applying her research toward the pursuit of a doctorate degree at the National Natural History Museum in Stockholm, where she will be working under Fredrik Ronquist.

Maiz Connolly was hired as a Citizen Science Coordinator (temporary, part-time) in May 2017, and will work through the end of the current fiscal year.

Miscellaneous

Anthropology

On May 11, these three talented actors (Navia, Jason, and Sky) from *Raven's Home*, a new show starring Raven-Symoné and starting on the Disney Channel in July, visited the museum. Their Studio Teacher, Sissie (Laura) Torrance, led the hardworking actors through the museum for a day of general education and exploration accompanied by the mothers of Navia and Jason and Sky's grandmother. Sissie happens to also be Collections Manager KT Hajeian's mother, so they scheduled time to go on a behind-the-scenes tour of the Ethnology Storeroom. KT used the Disney connection to pique their interest by showing them objects from the Polynesian cultures that inspired the latest Disney movie *Moana*.



From left to right: Navia Robinson, Jason Maybaum, and Sky Katz.

Collections Study Awards

The NHMLA Collections Study Award committee (A. Celestian, A. Hendy, N. Smith, and C. Thacker) made 6 proposal awards for the Spring cycle to graduate and undergraduate students in support of collections-based research visits to the NHMLA: J. Caleb Chappell, Abigail M. Glass, Scott Kottkamp, Kevin Surya, Ana Caroline Oliveira Vasconcelos, and Dorien de Vries.

Dinosaur Institute

Honors and Awards

Gualicho shinyae, a new, short-armed theropod dinosaur from the Cretaceous of Argentina that was published in PLoS ONE in 2016 by Nate Smith and colleagues, was selected as the "Number 1 pick for Fossil Vertebrate published in an Open Access Journal" in 2016:

http://blogs.plos.org/paleocomm/2016/12/28/plos-paleo-top-10-oa-fossil-vertebrates-1-gualicho-shinyae/

Nate Smith and colleagues A. Huttenlocker, D. Bottjer, S. Nuzhdin, and C. Stanford at USC were awarded a grant



from the USC Research Collaboration Fund to support the creation of a Paleosciences Research Consortium. The award is for \$30,000 and is renewable for up to three years.

Invertebrate Paleontology

Invertebrate Paleontology received the last of its three Collections Study Grant recipients for 2016–2017. Over the last year, Natalia Carranza (UC Davis), Emily Orzechowski (UC Berkeley), and Camilla Souto (UC Berkeley) spent a combined 8 days using our collections to aid their research. Each gave a brown bag presentation to our research associate and student intern community.

Camilla Souto from UC Berkeley studies fossil Cassiduloid Echinoids at the IP collections facility.

Mineral Sciences

Crevoshay Jewelry Exhibit at Dino Ball

For the 2017 Dino Ball, we put together a special nature-inspired exhibition of the amazing works of Paula Crevoshay. Paula is a jewelry designer based in New Mexico who has won many awards for her inspirational designs. The display consisted of flowers and butterflies made of all kinds of gems including black diamonds, zircons, sapphires, and opals.



Crevoshay exhibit in the Gem Vault.

Mineral Shows

As usual, we exhibited at the Tucson Gem and Mineral Show. This year's theme was *Minerals of the Midwest*. Fortunately, we have some stunning, huge crystals of calcites that we took with us. A massive barite from Missouri, a large calcite from Tennessee, and an amethystine calcite from the Tri-State district all made the trip.



We also exhibited at the joint California Federation of Mineral Societies and American Federation of Mineral Societies show held in Ventura from June 9–11. Alyssa put together a great exhibit of the finest minerals to come out of the Transverse Range here in Southern California.

Giants of the Midwest presented at the Tucson Gem and Mineral Show 2017.

UNRC

Indiana Jones Podcast April 2017

Lila Higgins was a guest on the Indiana Jones Podcast talking about insects and other arthropods in various scenes.

http://www.indianajonesminute.com/temple-of-doom-minute-56-crickets-and-cockroaches-and-centipedes-oh-my/ http://www.indianajonesminute.com/temple-of-doom-minute-57-not-my-fault-not-my-fault/

Vertebrate Paleontology

Alan Zdinak (VP) received the second annual Service Award from the Association for Materials and Methods in Paleontology for recording and editing a full day of *Back to Basics* lectures from their 2016 meeting.

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