

Research & Collections Newsletter



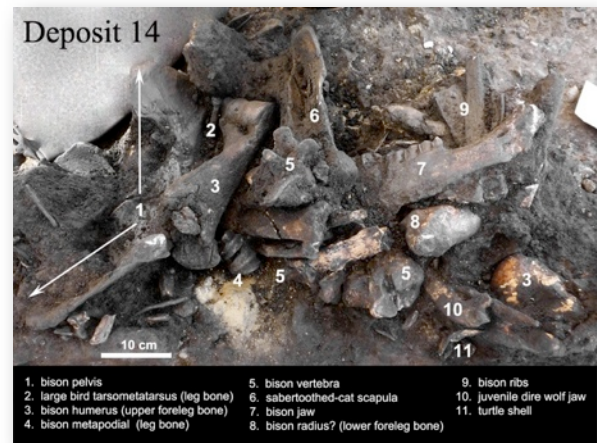
November 2012

re•search (rī-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

Rancho La Brea

In the Project 23 excavations, Box 14 continues to yield thousands of fossils, many of which are tiny microfossils. Last month alone we measured 320 larger fossils in the field and identified over 200 microfossils in the lab. We are uncovering quite a few bison (*Bison antiquus*) elements concentrated in the one area, which may represent the first associated bison at Rancho La Brea. This recent photo of Box 14 shows a number of exposed bones, including parts of the bison.



Crustacea

Over the past few months we are thrilled to have received an amazing collection of biological specimens from distinguished Scripps Institution of Oceanography UCSD Professor of Biology and Oceanography Dr. Robert R. Hessler. Items range in size from a two and one-half foot long American lobster (*Homarus americanus*, at left) to cephalocarids and mystacocarids that are less than 1mm long! Despite their small size it is actually these cephalocarids and mystacocarids that have added most to the holdings of our collection, making us undoubtedly owners of one of the world's largest collections of these tiny and unusual crustaceans.



Above: The restored Tourist being lifted up the east entrance.
Right: The Tourist when it left California.



Registrar's Office and Conservation Section

The 1902 Tourist automobile, originally manufactured in Los Angeles and destined for the new *Becoming Los Angeles* exhibit, has come to NHM after undergoing restoration and conservation work by an automotive conservator in Pennsylvania. The Tourist was delivered in fantastic condition to the east entrance, but getting the car to its new home in the exhibit hall was another matter, despite being small enough to live up to the name, "horseless carriage". In another cooperative *Becoming Los Angeles* team effort, which included the Registrar's Office, Conservation, History, and a contracted rigging company, the Tourist was strapped to a steel plate and then secured to a Gradall, which lifted the Tourist up the stairs of the 1913 Building. The Tourist was then rolled through the Rotunda and up a ramp to its final home in the new exhibit.

R&C Specimens on Exhibit at USC

A Tanner crab, a Sabine's gull, ammonites (photo below), shark jaws, and much more are now on display across the street at USC in the Allan Hancock Building's Torrey Webb Room. This mini display came to life as a result of collaborations between NHM collections staff and USC graduate students. Rick Feeney (Fishes), Mary Stecheson (Invert Paleo), Kathy Omura (Marine Biodiversity Center), Kimball Garrett (Birds), and Adam Wall (Crustacea) collaborated to make this endeavor a reality.

Ichthyology contributed a variety of fish specimens as well as unusual items such as gill rakers from a Basking shark. Invertebrate Paleontology has ammonites, trilobites and a large scallop fossil in their display case. A complete coral head and a variety of corals exhibiting a diversity of shapes and colors are displayed in the Marine Biodiversity Center case. Ornithology's case contains taxidermy sea bird specimens. The spiky Golden King crab and two types of Tanner crabs are some of the specimens in the Crustacea display case.

Elizabeth Homberger (Conservation) checked each display case for proper environmental conditions and each specimen for secure mounting and placement. Laura McGovern (Registrar) tirelessly pursued all avenues in order to obtain the security and facility information required to complete this loan. Phyllis Sun (MBC Curatorial Assistant) and Maria Peltekova (USC work-study student with MBC), with help from Rick and Adam, packed and moved the specimens to USC. The display cases contain museum specimens, on loan, from five different R&C sections.

Dinosaur Institute

Visiting researchers Keiichi Aotsuka and Momo Yamashita from Tokyo, Japan, visited the Dinosaur Hall to study our beautiful mosasaur *Platecarpus tympanicus* and the



holotype specimen of the Cretaceous bird *Hesperornis mcdonaldi* in conjunction with their ongoing research. While traveling to Raleigh, NC for this year's Annual Meeting of the Society of Vertebrate Paleontology (SVP), their timing was perfect to view the shuttle Endeavor make its way to the Science Center. Keiichi Aotsuka poses with our dueling dinosaurs at right.

History

Collections on the Move!

For the past several months, it would not be uncommon to see a History Department staff member moving alongside a pallet full of mysterious boxes. People might wonder 'what's inside?' as these pallets roll by. To answer that question, the History Department has been consolidating its collection of historic artifacts into one collection storage facility. Each month focused on a different portion of "the move."

August, or the month of long history, included the movement of over 90,000 objects from a long span of history. Items ranged from a Curtis airplane engine to furniture used by the Del Valle family. This massive transport of objects was accomplished through the collaboration of NHM's History and Operations Departments. Pictured on the lower left are materials being readied to leave the old warehouse. On the right shows delivered pallets to the new warehouse.



The artists' move in September included the transport of 385 paintings as well as hundreds of costumes and textiles from the History collections. Art can be defined by a multitude of media — and the History Department has it all — prominent painters and Hollywood costumes are among the numerous pieces of artwork within the collection!

October proved to have cars, cars, cars and... motorcycles! NHM started collecting automobiles in 1929 beginning with a 1909 Welch Model 4-0, a typical American luxury car. History and other in-house departments along with contracted staff safely moved over sixty vehicles to their new storage site. Pictured here is the 1909 Case Steam Traction Engine used in ventriloquist Edgar Bergen's citrus fields in the San Fernando Valley.

This new collection facility will not only protect the History Department's collections, but will also provide more access in the future to researchers and allow the continuation of the behind-the-scenes car tours! Stay tuned for more information by visiting <http://www.nhm.org>.



L.A. County Incorporation Papers

The recent warehouse activities included moving over 9,000 historic Records of Incorporation for businesses in Los Angeles County. This portion will now join the bulk of the collection already at the Seaver Center where they are available to researchers.

Field Work

Vertebrate Paleontology



Howell Thomas led a field trip on October 6 to collect an *Allodesmus* pinniped scapula from the Sharktooth Hill property owned by Sean and Lisa Tohill. Howell was assisted by Vertebrate Paleontology volunteers (below: left to right) Max Orozco, Jimmy Kaplan, and Lukas Brown.



Vanessa Rhue and Sam McLeod (bottom right) participated in a fieldtrip to Carmel Church Quarry, Virginia, on October 21. The trip was led by Alton Dooley of the Virginia Museum of Natural History as part of the Society of Vertebrate Paleontology annual meetings. Carmel Church is a significant vertebrate fossil locality known for yielding abundant vertebrate fossils of shark, bony fish, marine reptiles, birds, sirenians, seals, whales, and land mammals. A tooth of *Notorynchus cepedianus* from the cow shark family was one of the many shark fossils found on the trip.



The 17th annual Red Rock Canyon Museum Members' fossil collecting trip to Red Rock Canyon State Park in the Mojave Desert was held on 26 to 28 October 2012. Staff from Vertebrate Paleontology included David Whistler and Xiaoming Wang, and from Rancho La Brea included Gary Takeuchi, Aisling Farrell, Laura

Tewksbury, and Michelle Tabencki, in collaboration with Education and Exhibition staff including Laurel Robinson, Karen Ewald, Vanessa Vobis, Tiffany Saleh, Brayden Moore, Rocio Santoyo, and Laura Bliss. 57 eager participants gathered in the scenic desert exposures to try their hand in the art of collecting vertebrate fossils. The highlight of this year's collecting was the discovery, by Dave Whistler and Museum Member Tom Elder, of a right jaw of a large ancient cat that is most certainly a new occurrence for the Dove Spring Formation. We will know more about this exciting discovery once the specimen is prepared in the Vertebrate Paleontology Preparation Lab. Other discoveries included a partially articulated hind foot of a three toed horse, several teeth of three-toed horses, and an antelope tooth. In addition to the three half-day regular fossil collecting trips, this year's program included a moonlight trail walk, a Sunday morning nature and geology hike led by David Whistler, and a Saturday evening presentation on Tibetan paleontology by Xiaoming Wang.



Above: Gary Takeuchi, Curatorial Assistant of Page Museum, is intensely focused on extracting a cat jaw (inset in lower right) along with a partially articulated three-toed horse leg and an antelope jaw. Right: Ken Elder proudly displays a complete upper cheek tooth of an antelope, his personal best for the day and a quality specimen worthy of a Museum collection.

Herpetology

Greg Pauly travelled to Davis, CA September 24 to October 1 to trap turtles as part of his study examining competition between non-native Red-eared Slider Turtles and our native Western Pond Turtles (at right). The study is being conducted with the assistance of two undergraduate collaborators and a slew of undergraduate volunteers. Greg recently expanded the study to include a stable isotope analysis to examine dietary overlap between these potential competitors. The preliminary results are suggesting that there may not be as much overlap and therefore competition for food as is commonly suggested.



Entomology

*Field work for the Costa Rican Zurquí All Diptera
Biodiversity Inventory (ZADBI)*



Dr. Brian Brown and parataxonomist Marco Moraga, setting up a bait trap to catch flies.

This September, Dr. Brian V. Brown, Co-PI, Dr. Art Borkent, and Project Manager, Anna Holden, traveled to Costa Rica to begin work on a 3-year, NSF-funded *All Diptera Biodiversity Inventory* (ZADBI). This project is in collaboration with The National Biodiversity Institute (INBio) of Costa Rica, a private research and biodiversity management center. ZADBI staff worked with a skilled team of local parataxonomists from INBio to refine multiple collecting and specimen preparation methods.

The main sampling site is a mid-elevation 5 acre cloudforest in Zurquí de Moravia, which has many different habitats and a rich topography. Previous research has shown that middle elevation sites are the most diverse in the world and may provide the most species new to science. There will be two other sites at similar elevations in Costa Rica: the nearby Tapantí National Park and Las Alturas, near the Panamanian border. By restricting sampling to a few rich sites, the intention is a sustainable project that can deliver a complete list of species with the anticipation of at least 3,000 discoveries.

Once specimens are collected and prepared in Costa Rica, they will be shipped to Los Angeles and then to 44 world-wide Diptera experts for identification. Specimens will be databased and profiles will be exported into Encyclopedia of Life (EOL), a peer-reviewed digital resource to integrate and provide access to all species of life. A new ZADBI website will serve as outreach to both research and public audiences. Additional re-

search projects on dipteran faunal succession on carrion and dipteran galls will be developed and conducted with Dr. Paul Hansen and his students from the Universidad de Costa Rica.

ZADBI is the first modern effort to thoroughly inventory the megadiverse taxon Diptera in any continental tropical area. True flies include more than 160,000 species worldwide and are just as vulnerable to extinction and habitat loss as larger animals, however, research on flies is far less advanced because they are small and very diverse in their habits. Aside from the obvious pests and disease carriers, like house flies and some mosquitoes,

most flies are actually beneficial, as decomposers, pollinators, predators, and much more. An estimate of their true species diversity, with many thousands new to science, will allow us to better understand the importance they play in ecosystems, as well as evaluate the impact of habitat change and loss affecting life everywhere.

Dinosaur Institute

The Dinosaur Institute recently returned from the 2012 Haaga Dinosaur Expedition in Utah. For almost a month, the team excavated the bones of large sauropods and other smaller dinosaurs. One of these sauropods is nicknamed “Gnatale,” which was proudly featured in the current issue of the *Naturalist*. The “Gnatale” quarry is a very fossiliferous bonebed that has yielded bones from other sauropods, an ankylosaur, a theropod and numerous limb elements of an ornithomimid dinosaur. In addition to the Dinosaur Institute’s Doug Goodreau, Luis Chiappe, Alyssa Bell, Diana Pomeroy, Erika Canola, and Doyle Trankina, the crew included an international team of experts and students from the National University of Rio



Crew members working the lower quarry.

Negro in Argentina, the Universidad Autonoma Madrid, Cal State San Bernardino, the Western University of Health Sciences, the University of California Santa Barbara, and community college students enrolled in the NSF funded “Proyecto Dinosaurios”, and volunteers and special guests. Together the team recovered 65 plaster jackets — containing many more bones of various dinosaurs — that will be prepared in the Dino Lab in coming years. This work not only adds to the museum’s Mesozoic collection for research purposes but also provides the

public an opportunity to view ongoing preparation activities in the Dino Lab.



Dinosaur Institute

Traveling during the months of September and October, Maureen Walsh, Stephanie Abramowicz, and Luis Chiappe visited the Beijing Natural History Museum, the Dalian Natural History Museum, and the Xinghai Museum of Prehistory (Dalian, China) to prepare, photograph, and study a number of Early Cretaceous (ca. 125 million years ago) birds from northeastern China. Spectacular fossil birds, many with remains of plumage and soft tissues, have been found in this part of China. Luis is co-authoring a book on these birds, often referred to as specimens of the “Jehol Biota,” with the Director of the Beijing Natural History Museum (Dr. Meng Qingjin), which will be published by the Johns Hopkins University Press. Furthermore, our work in China has led to many individual research projects — the results of two were published within the last few months (see Gao et al., 2012, and O’Connor et al., 2012 in the section on *Publications*). The specimen featured in Gao et al., 2012 is shown at left.

Meetings, Workshops, and Presentations

Crustacea

In October, Dr. Jody Martin was invited to be the lead speaker of Emory University's new "Nature of Knowledge" seminar series, where he spoke on the historical interaction and compatibility of science and faith and on his recent book on the topic of evolution, creationism, faith, and science. Sponsored by the office of the President of Emory University and 8 other campus organizations, the talk was attended by more than 200 faculty and students.

Ichthyology

Rick Feeney attended a SCAITE (Southern California Association of Ichthyological Taxonomists and Ecologists) meeting at the Cabrillo Marine Aquarium on September 17th. Rick joined a discussion on sculpin (Cottidae) taxonomy and tested a new sculpin key.

Vertebrate Paleontology

Xiaoming Wang, Sam McLeod and Vanessa Rhue attended the 2012 Society of Vertebrate Paleontology (SVP) annual meetings in Raleigh, North Carolina. Vanessa Rhue co-authored a platform talk (left photo) entitled, "A new halitheriine dugongid from the early Miocene of Orange County" with co-authors Meredith Rivin of the Cooper Center and Jorge Velez-Juarbe of Howard University. Vanessa prepared the specimen some number of years ago and was delighted to participate in the research.



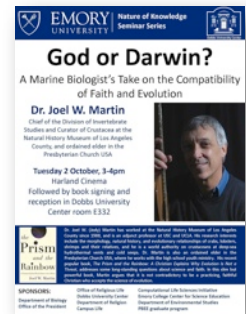
A new halitheriine dugongid from the early Miocene of Orange County" with co-authors Meredith Rivin of the Cooper Center and Jorge Velez-Juarbe of Howard University. Vanessa prepared the specimen some number of years ago and was delighted to participate in the research.

Vanessa Rhue (pictured right with Gabe Santos of the Cooper Center and Lisa Babilonia

of Ralph B. Clark Regional Park Paleontology Museum) participated in an SVP preparation workshop on the use of archival materials for housing and labeling vertebrate fossils. This hands-on workshop introduced materials and methods for using archival inks, consolidants, adhesives, and papers to repair and house a terracotta pot "specimen" (below right). The workshop was organized by Amy Davidson of the American Museum of Natural History.

Rancho La Brea

Rancho La Brea staff John Harris, Aisling Farrell and Gary Takeuchi along with Research Associate Chris Shaw and lab volunteer Meena Madan attended the 72nd Annual Meeting of the Society of Vertebrate Paleontology in Raleigh, NC, during the week of October 15th–19th.



Herpetology

Greg Pauly attended the California Islands Symposium October 23–25 in Ventura, CA. He met with collaborators from CSU Northridge and Colorado State University to plan research examining the reptiles and amphibians of the Channel Islands. NHM featured prominently at the meetings with Lindsey Groves' work on identifying Channel Island shells from the last interglacial a focal point in one of the plenary sessions and Corinne Heyning giving an excellent talk on the history of the Museum's Channel Island surveys.

Greg has also been busy on the local seminar circuit having presented his research on mating signal evolution in toads at seminars at UCLA October 3rd and Occidental College on October 30th.

Collaborations in Biodiversity: Catalina Workshop



On September 13–15, NHM researchers joined faculty from USC's Park Campus and USC's Keck School of Medicine for three days of collaborative discussion on Catalina Island. The workshop was organized by Regina Wetzer and Dean Pentcheff from NHM, along with Sergey Nuzhdin and Roberta Marinelli of USC, and was hosted by USC's Wrigley Marine Science Center. NHM attendees included Luis Chiappe, Justin Hall (whose graduate work is shared between NHM and Keck), Greg Pauly, Dean Pentcheff, Xiaoming Wang, and Regina Wetzer.

The twenty-five participants explored opportunities for broadening collaborations in biodiversity research. Most biodiversity research has a basis in population and community ecology, but with a reach that spans molecular, genomic, organismal, and socio-ecological levels of organization. USC has strengths in several of these areas, whereas scientists from NHM offer additional perspectives and opportunities for collaboration. The goal is to generate fundable research proposals combining that expertise in innovative projects that could not happen without cross-disciplinary and cross-institutional collaboration.

The participants unquestionably learned a great deal about research and administrative directions at their sister institutions (and even about their own home institutions). We're confident that the insights we gained will be leading to new research projects.



One of the four halls at the Munich Show. The special exhibit where our specimens were displayed was inside the "African Kasbah" on the right of the picture.

Mineral Sciences

NHM was invited to participate in the special exhibition "African Secrets" at the Munich Mineral Show 2012. Six world class African specimens from NHM were shown and seen by over 40,000 (over 4 days, only 2 opened to the general public). Munich is the second largest mineral show (and fossil show) in the world and few American Museums can afford to visit. New efforts by the show organizers to subsidize travel expenses may change this. The meeting was a wonderful opportunity for staff to

meet colleagues from European museums in the SMMP (Society of Mineral Museum Professionals) as well as networking with collectors and dealers from around the world.

NHM was invited to participate in the special exhibition “Copper Minerals” at the Denver Show 2012. Mineral Sciences put an exhibit together on “The Color of Copper,” mixing attractive mineral specimens and scientific explanations.

Dinosaur Institute

Diana Pomeroy, a Masters student from Cal State Long Beach, attended the Society of Vertebrate Paleontology annual conference held in October in Raleigh, North Carolina. Ms. Pomeroy presented a poster reporting on the taxonomic reassessment of Early Cretaceous saurornithid birds which summarized and expanded upon the findings reported in a recently published article in the *Journal of Vertebrate Paleontology* (see Gao et al., 2012 in section on Publications).



Eloïse Gaillou in front of the “Color of Copper” temporary exhibit at the Denver show.



Justin Hall and a team of researchers (including Luis Chiappe) also presented at the recent Society of Vertebrate Paleontology meeting in Raleigh, NC, on the dromaeosaurid dinosaur *Microraptor*. This unusual dinosaur possessed wings on its back legs, in addition to flight-capable wings on its forelimbs. Their new model suggests that the animal carried its legs tucked under the body in normal conditions, similar to modern birds and theropod dinosaurs, but could deploy the legs to the side during turns, therefore increasing the roll rate. This adaptation, they argue, would make *Microraptor* a very competent and agile flier. Depictions were created by NHM staff artist Stephanie Abramowicz (above). This presentation has been covered in *Scientific American*, *Science News* online, *The Economist*, and the November 2, 2012, print edition of *Science*.

Conservation

Liz Homberger was recently elected to the board of the Western Association for Art Conservation (WAAC) as a member-at-large. She commenced her two-year term at the annual WAAC meeting, held this year from October 22-25, 2012 at the Palm Springs Art Museum.

Tania Collas (at right) also attended the WAAC meeting, where she presented a talk on the installation of the Los Angeles City Model for the *Becoming Los Angeles* exhibit.

Laleña Vellanoweth attended “The Siqueiros Legacy: Challenges of Conserving the Artist’s Monumental Murals,” a symposium organized by the Getty Conservation Institute. The symposium was held in conjunction with the completion of the conservation of David Alfaro Siqueiros’ mural, *América Tropical*, at Placita Olvera, which has not been visible to the public in almost 80 years. The symposium also included a visit to the mural and interpretation center highlighting the history of the mural and the steps leading to its conservation and preservation with interactive media. Detailed information of the project, a collaboration between the Getty Conservation Institute and the City of Los Angeles, can be found at http://www.getty.edu/conservation/our_projects/field_projects/siqueiros.



External Funding

Vertebrate Paleontology

Xiaoming Wang, Curator of Vertebrate Paleontology, received a grant of \$81,520 from the National Science Foundation's Sedimentary Geology and Paleobiology program. The grant is entitled "Collaborative Research: High-resolution, multi-proxy Miocene-Pleistocene climate and environmental record from the high-elevation Zhada basin, SW Tibetan Plateau" (EAR 1227212).

Dinosaur Institute

The 2012 field season in Utah was supported through a generous donation of Mr. Paul Haaga and his wife, Heather. Graduate student Lauren Mosely (UCSB) works hard in the lower quarry sporting the expeditions' t-shirt.



Public Outreach

Conservation

Tania Collas, Liz Homberger, and Laleña Vellanoweth introduced guests at the 2012 Haunted Museum to the world of Conservation through fun art restoration activities as well as a demonstration of how ultraviolet light can



reveal restoration that is otherwise not detectable in visible light. Shown at left, a budding conservator tries his hand at surface cleaning a very dirty painting. The Wizard of Oz painting was created by Laleña, who also added the dirt on top in preparation for this activity!

Herpetology

Greg Pauly and Neftali Camacho took part in the annual *Reptile and Amphibian Appreciation Day* (RAAD) on October 7th. Volunteers Amber Suto, Tanja Wolfmeyer and Estella Hernandez were also at hand, helping by answering questions and providing interesting facts to the public about the specimens displayed at the Herpetology tables. Greg Pauly introduced Professor David Wake, research associate and professor at the University of California at Berkeley, who gave an informative lecture on the diversity of California salamanders. Neftali Camacho provided behind the scenes tours for the excited public. Despite all the happenings in downtown Los Angeles, which included a visit of President Barack Obama and CicLAvia, the event was well attended and went off without a hitch.

Greg Pauly also presented a lecture to Page Museum docents on October 20th on the lizards of La Brea, discussing the eight species of lizards so far recovered from the asphalt deposits.



Haunted Museum October 28th

Both Herpetology and Ichthyology became citizens of the *Land of Awe* for this year's Haunted Museum (right). Ichthyology showcased an array of fishes that may be picked up by tornadoes and Herpetology displayed a menagerie of arboreal reptiles and amphibians that could be found in forests (haunted or otherwise).



Echinoderms

The Echinoderms Department was represented at the Haunted Museum event by skeletons of sea urchins that can live for more than 100 years, here shown to a Banana-person by the curator, Gordon Hendler (photo left). During the event, Echinoderms' gardener, Florence Nishida (at left), and friends built scarecrows at the Museum Home Garden in the North Campus.



Mineral Sciences

Mary Stambaugh, along with work-study students Caroline Im and Chris Cho and several volunteers from the Gem and Mineral Council created a display about emeralds (actually a green variety of the mineral beryl) for the Haunted House. Their display included some information on the rare geological



conditions required for emerald formation, as well as the causes of the emerald green color. They also had tips on identifying emeralds with a popular "guess the emerald" game. Party-goers tried to choose the emerald from a selection of other lovely green gemstones. If they got it right, they got candy.



Rancho La Brea

Left, L-R: Karin Rice, Gary Takeuchi, Aisling Farrell, Laura Tewksbury, (front row) Michelle Tabencki and Carrie Howard from the Page Museum participated in the Annual Haunted Museum at the Natural History Museum on October 28th exhibiting some of the recent bird finds from Project 23.

Vertebrate Paleontology

Sam McLeod (at right) and Howell Thomas pulled

specimens from the collections to showcase a table titled, "The Wizard of Jaws" for the October 28 Wizard of Awe Haunted Museum. Specimens on display included the bizarre walrus-like whale *Odobenocetops*, the gnarly bone crusher, *Borophagus*, the giant South American crocodylian *Purussaurus*, a primitive archaocete whale, and the infamous saber-toothed cat, *Smilodon*.





Vertebrate Paleontology

On 15 September 2012 Curator Emeritus Lawrence Barnes (left) gave a Page Museum Docent Training lecture “Re-discovering Miocene fossil marine mammal localities in Baja California Sur, Mexico: Field work of 2012”. The purpose of this lecture was to demonstrate the methods that Museum staff use to procure funding (in this case from the National Science Foundation) to conduct field work and research with students.

Dinosaur Institute

For the fall 2012 semester, paleontological preparator Maureen Walsh is participating in the after-school program in the USC Family of Schools called Wonderkids which is organized by Ms. D.J. Kast. This program focuses on different areas of science by inviting speakers to contribute by speaking to second and third graders about what it’s like to work in their chosen fields. This semester the topics include Neuroscience, Paleontology, Animal Science, Medicine, Chemistry and Environmental Science. Nearby institutions which are a part of the Wonderkids program include Vermont, Weemes, 32nd Street, Foshay, Norwood, and Mack Elementary schools. It has been an amazing experience and Maureen plans on making Wonderkids a regular outreach activity for the Dinosaur Institute.



Rancho La Brea



Preparator Michelle Tabencki visited 147th Street Elementary school, where children watched a presentation of the Project 23 excavation. During the presentation, the children got to see a fossil cast of a saber-toothed cat, excavation tools, and dirty clothes. There were discussions about the significance of paleontology and how it affects the world today.

Children were encouraged to pursue science in their future careers.

The Page Museum’s R&C staff has been assisting the Education Department in a new docent and volunteer training program. This has included classroom lectures by Dr. John Harris and behind-the-scenes tours of the Fishbowl Lab and Project 23 excavations by Shelley Cox, Trevor Valle, Carrie Howard, Laura Tewksbury and Christina Lutz.



Top: Trevor Valle giving a tour of the Fishbowl Lab to new volunteers.

Bottom: Carrie Howard explaining excavation techniques in Box 14.

Ichthyology

Dr. Javier Gago brought his biology class from Glendale Community College to visit the Fish Collection on the 27th of September.

Biodiversity and Environment Seminar Series

On October 4, NHM hosted Steve Kay, USC's new Dean of the College of Letters, Arts, and Sciences in a seminar on the *Architecture and comparative genomics of circadian networks*. Dr. Kay's seminar was the first NHM-hosted seminar in a collaborative series of invitational seminars shared with USC. About twice a month from September through April 2013, USC and NHM will alternately host seminars broadly addressing the topic of "Biodiversity and Environment", and oriented specifically to encouraging interdisciplinary and interinstitutional collaboration in those areas.

Dr. Kay was hosted by John Long and delivered his talk in NHM's gorgeous Rotunda to a capacity crowd of about ninety attendees. The seminar was immediately followed by an outdoor reception in the new Home Garden area on the west side of the Museum.

For many of the USC attendees, this was the first time in many years (or the first time at all) that they had visited NHM. The beautiful venue of the Museum's 1913 Building, along with the gracious post-seminar reception, proved to be an excellent enticement to keep them coming back.

BioSCAN

NHM is sponsoring a new research initiative: *Biodiversity Science: City and Nature*, or BioSCAN for short. This first-of-its-kind project began in September and is expected to run for three years. The BioSCAN project will discover and explore comparative biodiversity from the urban core right out into the less-urban surrounding areas. The taxonomic focus is on insects, the most diverse group of animals on the planet. Research direction and project management is being carried out by Brian Brown (Curator of Entomology), and Regina Wetzer (Director of the Marine Biodiversity Center). Insect sample processing and training of the work-study and volunteer sorters is being led by new employee Lisa Gonzalez.

The core research activity of BioSCAN is centered on about twenty sampling stations that will be emplaced at locations from NHM's own North Campus right out to Griffith Park and the Angeles National Forest. Each station will have a long-term insect trap (a Malaise trap) paired with a research-grade microclimate logging station. In its ramp-up phase, BioSCAN personnel are working on developing the insect sorting and identification pipeline that will be needed to process the eighty



monthly trap samples that will be arriving once the project is fully operational. Weather stations are being tested in North Campus prior to field deployment, and Malaise trap frames are being prototyped (the photo shows Adam Wall of the MBC and Research Associate Dean Pentcheff working on a frame design).

We'll bring you updates on the science and on the outreach parts of this project as it launches and grows. Check in on the project at <http://research.nhm.org/bioscan>

History

On Saturday October 27th the Seaver Center staff and the Museum Archives participated in the 7th annual Archives Bazaar at USC's Doheny Library where more than 80 libraries, museums, cultural institutions, private collectors, and official archives shared their collections with the public. Pictured at right are Collections Managers Brent Riggs and Betty Uyeda with an interested attendee.

Shown at right is Museum Archivist Cathy McNassor promoting her book on the La Brea Tar Pits and talking about NHM's upcoming 100th anniversary.



Malacology & Mineral Sciences



On Saturday, October 6th Lindsey Groves (Malacology) and Alyssa Morgan (Mineral Sciences) co-lead *Living on the Fault Line: A Day Along the San Andreas* for 21 participants. This annual excursion highlights fault-formed geomorphic features including pressure ridges, fault scarps, sag ponds, hogbacks, fault scarps, and shutter ponds.

Alyssa Morgan (center, in black) explaining paleoseismology at Pallett Creek, near Valyermo, CA right on the San Andreas Fault. This newly exposed sequence of former lake bed sediments can be carbon dated and offsets noted to determine when earthquakes of the past occurred.

Invertebrate Paleontology, Vertebrate Paleontology, Page Museum, Dinosaur Institute, & Malacology

National Fossil Day was held on Saturday, October 13th at the Page Museum. Participants included Sam McLeod, Vanessa Rhue, Howell Thomas, and Xiaoming Wang (VP), Mary Stecheson (IP), Lindsey Groves (Malacology), John Harris, Gary Takeuchi, and Trevor Valle (Page Museum), Justin Hall (Dinosaur Institute), Nic Mihora and Chelsea Skrabak (Page Museum volunteers), and John Long (R&C VP). Featured specimens included pygmy mammoths from Santa Rosa Island [Sam & Vanessa], fossil fish [John Long], T. rex teeth [Justin], Cretaceous mollusks [Lindsey], fossil cephalopods [Mary], pathologic dolphin vertebra and ulna [Howell], Rancho La Brea fossils [John Harris, Gary, & Trevor] and a Tibetan woolly rhino horn replica [Xiaoming].

*Mary Stecheson (IP) compares the Recent chambered nautilus (*Nautilus pompilius*) with fossil ammonoids and nautiloids. (Image courtesy of Vanessa Rhue).*



Malacology & Mineral Sciences

On Thursday, October 18th at 10:18 AM Lindsey Groves (Malacology), Alyssa Morgan and Eloise Gaillou (Mineral Sciences), Kristen Brown and Kelsey Ziff (E&E), Helene Rousselle (American Red Cross), and Christine Tanguay (volunteer) teamed up for the Great California Shakeout (California's Annual Earthquake Drill). They demonstrated liquefaction, plate tectonics (with a large puzzle map of the world), rock friction, wave motion using a Slinky, and table-top earthquakes through a laptop seismograph. Alyssa also gave an informative talk on earthquakes that featured a video of seismic events of 2011, particularly the March 11th 9.0 Tōhoku earthquake.

Volunteer Christine Tanguay demonstrating rock friction and liquefaction principles to young Shakeout participants.



Mineral Sciences

In September and October the Gem and Mineral Council sponsored two lectures. The first was "Rare gemstones that are revolutionizing the jewelry market" by gemologist and author Renee Newman and the second was a lecture on "The life of silent film star Claire Adams" by Heather Long. Both lectures were wonderful and informative and also featured a wine and cheese social prior to the talk.

Student Mentoring and Research

Crustacea

Since this past spring, CSULA masters student Mark LeBlanc has been working with Dr. Regina Wetzler and Adam Wall of the Crustacea department. Mark's project "Taxonomy of *Skogsbergia* ostracods (Ostracoda: Cypridiniidae) in Panama" examines cryptic species of myodocopid ostracods by using morphological characters to diagnose undescribed localities of ostracods endemic to Panama. Mark has been looking at closely related *Skogsbergia* specimens loaned from the Smithsonian and the Zoological Museum at the University of Copenhagen and he has designed a taxonomic key, using DELTA, for distinguishing between these closely related clades. Currently Mark is making digital biological illustrations for his publication and hopes to publish his research on a new species of *Skogsbergia* ostracod soon. We are very excited to have Mark in the lab!



Volunteers and Research Associates



Ichthyology

Mario Enriquez (left) has been volunteering in Fishes for several months. He is working on cataloging the newly acquired SCCWRP collection.

Vertebrate Paleontology

Research Associate Bruce Welton (at right) visited our collections October 25 through 26 to continue his research on fossil basking sharks.



Dinosaur Institute



In recognition of the ongoing commitment of our current and new volunteers, the Dinosaur Institute re-introduces Jose Soler (left) and welcomes back Jenny Robles (below right). Jose has assisted 3 field crews over multiple years: Utah 2011 & 2012, New Mexico 2011 & 2012 and the Petrified Forest expedition of 2011 together with the OEDG students, mentored by graduate student in-

residence Alyssa Bell. In addition to preparation, he also enjoys assisting with programs such as Haunted Museum. Jose works for Doctors without Borders and is from Costa Rica. Jenny is a microbiologist lab assistant and a student at Long Beach City College.



Our new volunteers include our own Mike Serwich, a puppeteer here at the museum; Kevin Cruz, Tony Turner and Breana Cumberland (left) who works for P.F. Chang's as a certified National Server Trainer and also for Aqualine — an irrigation and plumbing company in Corona. She graduated from Cal State Fullerton with a BA in Anthropology. Breana has done archaeological fieldwork in Sedona, AZ in conjunction with her undergraduate work and enjoys working on fossils and artifacts of any kind.

Distinguished Visitors

Dinosaur Institute

The museum was honored on Saturday, October 27, with a visit by Dominic Cumo. Dominic is 8 years old and the only child ever to be diagnosed with ALS — Lou Gehrig’s disease. Dominic aspires to be a paleontologist and was delighted to visit the Dinosaur Hall, Dino Lab and Age of Mammals as well as experience our wonderful puppets. He was accompanied by his adoptive parents Matteo and Shawnee Cumo, his nurse, special services dog “Kipper” and their host and our colleague Eric Scott, Curator at the San Bernardino Natural History Museum. The Dinosaur Institute would especially like to thank Brian Meredith for his wonderful and thoughtful assistance and his team of performance artists who made the Dominics’ visit so memorable.



Crustacea



In September, Dr. Gary Poore, Principal Curator Emeritus of Marine Biology at Museum Victoria, visited Crustacea’s collection of galatheid lobsters (squat lobsters) as part of a six museum, five week long tour across the United States. During Dr. Poore’s tour he visited all of the noteworthy American galatheid collections as part of the Census of Marine Life in an effort to gain a better understanding of the biodiversity of the deep oceans. During Dr. Poore’s week and a half visit here he worked with Adam Wall of Crustacea, Mark LeBlanc of CSULA, and many work-study students and volunteers to identify, photograph, and digitally database over 500 lots of previously unidentified galatheids. Also during his visit Dr. Poore gave a presentation to the Southern California Association of Marine Invertebrate Taxonomists held in the Collaboratory. But perhaps most exciting of all, Dr.

Poore discovered and described a brand new species of galatheid lobster from our collection during his time with us!

Ichthyology

Stuart Poss visited the Fish Collection in October to study some of our tropical scorpionfishes. He is interested in the genus *Pontinus*.



Pontinus clemensi (LACM 32264-8).

Susanne Plank from Elasmotech Lab visited our Collection to photograph round stingrays (*Urolophus halleri*). She is working with new image recognition software and its ability to identify/classify specimens.

Malacology

Ángel Valdés and Jen Alexander (Cal. Poly. Pomona) visited Malacology to examine nudibranch holdings and view the Endeavor fly-over. Richard L. Squires (CSUN, Geological Sciences) examined the Malacology holdings of the strombid genus *Rimella* for comparison to Eocene fossil specimens. Michael Merrill (Ariz. St. Univ., Anthropology) visited Anthropology and Malacology to compare mollusk related artifacts from the Grewe Site Collection from near Casa Grande National Monument, central Arizona with Recent specimens of *Callianax* (= *Olivella*) from southern California and the Gulf of California for his dissertation research.

Malacology and IP visitor Richard L. Squires (CSUN (Geological Sciences) and IP CM Mary Stecheson examining gastropod type specimens.

Anthropology and Malacology visitor Michael Merrill (Ariz. St. Univ.) photographing specimens from the Grewe collection for comparative research purposes.



Rancho La Brea



Dr. Daniel Fisher cutting a sample of Zed's tusk for analysis at the Page Museum.

Dr. Daniel Fisher, Director of the University of Michigan Museum, visited the Page Museum collections in late October. During his visit he looked at our mastodon cranial material and measured Zed, the Columbian mammoth individual from Project 23. He also took a section from near the proximal end of Zed's left tusk. This sample will be thin sectioned in order to examine the tusk growth lines during the last 4 or 5 years of Zed's life. The sample will also be used to examine oxygen, nitrogen and carbon isotopes which will help us understand the diet and movements of this Columbian mammoth.

Dr. Victor Bravo from the Museo Paleontologica Universidad Hidalgo, Mexico, visited the Vertebrate Paleontology and Page Museum collections in late September to examine comparative material of *Camelops*, *Bison* and *Paramylodon* to help with identifications of material he had collected in a late Pleistocene site in Mexico.

*Dr. Victor Bravo measuring *Bison antiquus* horn cores at the Page Museum.*



Dinosaur Institute

On September 20, we received the visit of Mr. Alfred 'Weird Al' Yankovic and his family in the Dino Lab, followed by a Dinosaur Hall tour. The Yankovics are members of the NHM and their daughter, Nina, loves dinosaurs.

Doug Goodreau and Luis Chiappe pose next to the Yankovic family at right.

Recent Publications

Bracken-Grissom, H., Felder, D. L., Vollmer, N., **Martin, J. W.**, and Crandall, K. A. 2012. Phylogenetics links monster larva to deep-sea shrimp. *Ecology and Evolution*, 2012; DOI: [10.1002/ece3.347](https://doi.org/10.1002/ece3.347)

*This short paper garnered other media attention (newspapers, blogs, and some radio spots) because of the interesting subject matter. The paper connects a large, mysterious marine larval stage (on the journal cover at right), called *Cerataspis monstrosa*, that has been known for more than 180 years, to its adult, which was unknown until now. It turns out that the adult is a deep-sea shrimp of the genus *Plesiopenaeus*.*



Campbell, K. E., D. R. Prothero, B. L. Beatty, and C. D. Frailey. 2012. New Late Miocene North American artiodactyl from the Amazon Basin: Implications for interchange dynamics. *Journal of Vertebrate Paleontology, Program and Abstracts*, 2012: 74.

Christiansen, P. and **J. M. Harris**. 2012. Variation in craniomandibular morphology and sexual dimorphism in pantherines and the sabercat *Smilodon fatalis*. *PLoS ONE* 7(10): e48352. doi:[10.1371/journal.pone.0048352](https://doi.org/10.1371/journal.pone.0048352)

Frailey, C.D., and **Campbell, K.E.** 2012. Two new genera of peccaries (Mammalia; Artiodactyla; Tayassuidae) from upper Miocene deposits of the Amazon Basin. *Journal of Paleontology*, 86(5): 852-877. September.

Gao, C., **Chiappe, L.M.**, Zhang, F., **Pomeroy, D.**, Shen, C., Chinsamy, and **Walsh, M.O.** 2012. A Subadult Specimen of the Early Cretaceous Bird *Sapeornis chaoyangensis* and a Taxonomic Reassessment of Sapeornithids. *Journal of Vertebrate Paleontology* 32 (5):1103-1112, September 2012.

Kampf, A. R., Mills, S. J., Housley, R. M., Boulliard, J.-C., and Bourgoin, V. (2012) Angarfite, $\text{NaFe}^{3+}_5(\text{PO}_4)_4(\text{OH})_4 \cdot 4\text{H}_2\text{O}$, A new mineral from the Angarf-Sud pegmatite, Morocco: description and crystal structure. *Canadian Mineralogist* 50, 781-791.

Kampf, A. R., Mills, S. J., Rumsey, M. S., Dini, M., Birch, W. D., Spratt, J., Pluth, J.J., Steele, I. M., Jenkins, R. A., and Pinch, W. W. (2012) The heteropolymolybdate family: Structural relations, nomenclature scheme and new species. *Mineralogical Magazine* 76, 1175-1207.

Kampf, A. R., Roberts, A. C., Venance, K. E., Carbone, C., Dunning, G. E., and Walstrom, R. E. (2012) Cerchiaraitite-(Fe), a new mineral from Big Creek, eastern Fresno County, California, U.S.A. Poster presented at European Mineralogical Conference 2012 (emc2), Frankfurt, Germany, September 2 to 6, 2012. Vol. 1, 263.

McLean, J.H. 2012. Detrital feeding in *Xeniosstoma inexpectans*, a new genus, new species, and new subfamily Xeniosstomatinae of Calliostomatidae (Gastropoda: Vetigastropoda), hosted by hexactinellid sponges of the Aleutian Islands, Alaska. *The Nautilus* 126(3):89-97, figs. 1-18.

Miller, J., T. Dikow, D. Agosti, G. Sautter, T. Catapano, L. Penev, Z.-Q. Zhang, **D. Pentcheff**, R. Pyle, S. Blum, C. Parr, C. Freeland, T. Garnett, L. Ford, B. Muller, L. Smith, G. Strader, T. Georgiev, and L. Bénichou. 2012. From taxonomic literature to cybertaxonomic content. *BMC Biology* 10:87. DOI:[10.1186/1741-7007-10-87](https://doi.org/10.1186/1741-7007-10-87).

Taxonomy has the benefit of one of the longest traditions of publishing in the sciences. On the other hand, taxonomy is cursed by the burden of having to move that scholarly tradition into a modern informatics infrastructure without losing the (essential) historical information. This open-access paper outlines some perspectives and approaches for prospectively making traditional-style publications directly accessible to modern informatics methods as well as retrospectively dragging older literature into the modern age.

- Mills, S. J., Bindi, L., Cadoni, M., **Kampf, A. R.**, Ciriotti, M. E., and Ferraris, G. (2012) Paseroite, $\text{PbMn}^{2+}(\text{Mn}^{2+}, \text{Fe}^{2+})_2(\text{V}^{5+}, \text{Ti}, \text{Fe}^{3+})_{18}\text{O}_{38}$, a new member of the crichtonite group. *European Journal of Mineralogy* 24, 1061-1067.
- Mills, S. J., Christy, A. G., **Kampf, A. R.**, Housley, R. M., Favreau, G., Boulliard, J.-C., and Bourgoïn, V. (2012) Zincalstibite-9R: the first 9-layer polytype with the Layered Double Hydroxide structure-type. *Mineralogical Magazine* 76, 1337-1345.
- Mills, S. J., **Kampf, A. R.**, Housley, R. M., Favreau, G., Pasero, M., Biagioni, C., Merlino, S., Berbain, C., and Orlandi, P. (2012) Omsite, $(\text{Ni}, \text{Cu})_2\text{Fe}^{3+}(\text{OH})_6[\text{Sb}(\text{OH})_6]$, a new member of the cualstibite group from Oms, France. *Mineralogical Magazine* 76, 1347-1354.
- O'Connor, J.K., **Chiappe, L.M.**, Chuong, C-M., Bottjer, D.J. and H. You. 2012. Homology and Potential Cellular and Molecular Mechanisms for the Development of Unique Feather Morphologies in Early Birds. *Geosciences* 2: 157-177; doi:10.3390/geosciences2030157.
- Rivin, M.**, J. Velez-Juarbe, & **V. Rhue**, 2012. A new halitheriine dugongid from the early Miocene of Orange County. Society of Vertebrate Paleontology, October 2012 annual meetings in Raleigh, North Carolina, Abstracts:162.
- Schumann, R., Minor, S.A., Muhs, D.R., **Groves, L.T.**, & McGeehin, J.P. 2012. Tectonic influences on the preservation of marine terraces: Old and new evidence from Santa Catalina Island, California. *Geomorphology*, 17 p., figs. 1-13. Abstract and figures published on line at DOI: [10.1016/j.geomorph.2012.08.012](https://doi.org/10.1016/j.geomorph.2012.08.012)

Staff Departures and New Staff

Rancho La Brea



Trevor Valle preparing one of Zed's tusks.

After four years of work as the Page Museum's Assistant Lab Supervisor, Trevor Valle has embarked on a new career as a paleomonitor. During his time at the Page Museum Trevor helped to supervise over 20,000 hours of volunteer fossil preparation and microfossil sorting in the Fishbowl Lab. He brought his enthusiasm for natural history, paleontology and particularly herpetology to the many Public Programs that he participated in such as, National Fossil Day, Adventures in Nature, Curator's Cupboards, B-movies and Bad Science, Megafauna Awareness Day, Reptile and Amphibian Appreciation Day and Haunted Museum. He also joined expeditions to El Golfo de Santa Clara in conjunction with Arizona

Western College, presented at the Western Association of Vertebrate Paleontology Annual Meeting in Yuma AZ in 2010, Page Museum Docent Potlucks, San Bernardino County Museum evening lecture series in 2010, and at the Biology of the Rattlesnakes symposium in Tucson AZ in 2011.

Trevor appeared on camera many times while representing the Page Museum including 'Dirty Jobs' with Mike Rowe, G4's 'Attack of the Show' episodes, KTLA's 'Career Days', local news channels during Project 23 Media events, the *Smilodon* puppet show, 'Mysteries at the Museum' for the Travel Channel, 'Life after People' on the History Channel, 'Prehistoric Los Angeles' on the Discovery Channel, and behind-the-scenes interviews for the

DVD of Ice Age III. He also spoke on radio shows and did online interviews for Wired.com and InTheMo.com, as well as co-consulted on the *Smilodon* puppet at the Henson Co.

Trevor was an integral part of the Project 23 team and we wish him the best of luck on his new ventures!

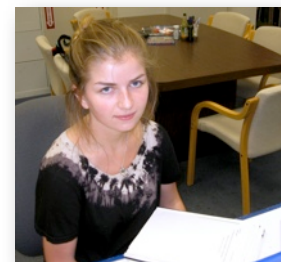


USC work study student Rex Roskos entering data from the Hancock Collection catalogs.

USC Work Study student Rex Roskos started work this fall at the Page Museum. His primary job is data entry of the backlog of some of the Hancock Collection that was excavated between 1913 and 1915.

Ichthyology

Agnieszka Bar (right) is our new work-study student in Fishes. Agnieszka is a biochemistry student at USC and is helping to catalog our reprints.



John Long

In October, we said farewell to Dr. John A. Long (at right), who left his position as Vice President for R & C after three years to take a research position at the Flinders University in his native Australia. We wish him well.



Miscellaneous

Vertebrate Paleontology

Curator Emeritus Lawrence G. Barnes (right) was awarded honorary membership in the Society of Vertebrate Paleontology (SVP) at the 2012 SVP annual meetings in Raleigh, North Carolina. Dr. Barnes was recognized for his distinguished contributions to the discipline of vertebrate paleontology. The award was received by Barnes' friend and colleague, Dr. Daryl P. Domning of Howard University. A video of the acceptance speech can be viewed at <http://www.youtube.com/watch?v=GLzq0xtuFuU>.



Jack Tseng, former Graduate Student-in-Residence (pictured at left with family), was awarded the prestigious Alfred Sherwood Romer Prize in recognition of his outstanding scientific contribution to paleontology at the 2012 SVP annual meetings in Raleigh, North Carolina. The Romer Prize is SVP's highest award for current or recent graduate students and is awarded on the basis of the scientific value and quality of the oral presentation of that research during the Romer Prize session at the SVP annual meetings. Jack's oral presentation was entitled, "Convergent Evolution and its Functional Mechanisms: A Case Study of Bone-Crackers."

Research Associate Meredith Rivin (right), of the Dr. John D. Cooper Archaeological and Paleontological Center in Orange County, was awarded the 2012 Marvin and Beth Hix Preparators' Grant at the SVP annual meetings in Raleigh, North Carolina. Meredith intends to develop a standardized training program for volunteers at the Cooper Center.



Dinosaur Institute

Dr. Luis Chiappe was graciously appointed as scientific advisor of the Xinghai Museum of Prehistory in Dalian (China) by curator Ms. Teng Fangfang



(at left). A wonderful reception and lecture took place amidst a traditional Chinese venue which included a formal tea ceremony, music performed on a Se, an ancient Chinese string instrument, and a classic demonstration of Tai Chi.

Mineral Sciences

In September, the Deutsch Gallery (rear portion of the Gems and Minerals Hall) was closed. Specimens were de-installed in advance of an extensive construction project above the ceilings over the hall and the staff offices. Access

to the offices will be limited and may be entirely off limits depending on the schedule of construction work. De-installation went extremely smoothly due in part to the help of three GMC volunteers: Jean Brandt, Erica Van Pelt and Danusia Niclewicz (Danusia was also a volunteer during the installation of the gallery in 1985). The exhibits department also acted quickly to cover and protect the walls and cases from damage.



Tony Kampf and Eloïse Gaillou de-installing the Deutsch Gallery.



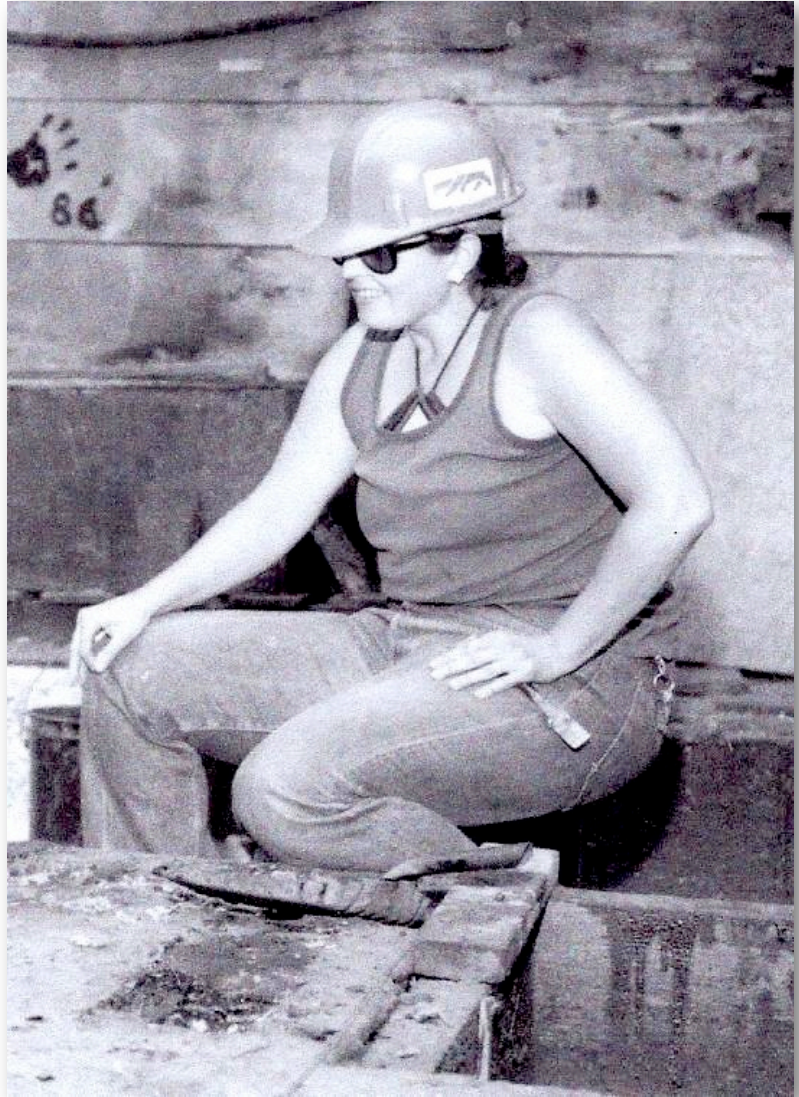
Rancho La Brea

Star of "Dirty Jobs" Mike Rowe was interviewed by CNN in the red chair in Pit 91 in late October.

Mike Rowe being interviewed by CNN in Pit 91.

Antonia Tejada-Flores 1949-2012

It is with great sadness that we report the passing of former staff member and research associate Antonia Tejada-Flores after a lengthy battle with a chronic illness. Toni worked in the Pit 91 excavation from 1971–1981. She then acted as Pit Boss after the excavation re-opened in 1984 until forced to retire for health reasons. She was also in charge of the salvage operation during the construction of LACMA's Japanese Pavilion that recovered fossils from a previously unknown deposit and intriguing articles from the Hancock family dump. A notable character in the Rancho La Brea Department, Toni was always a reliable source for specimen identifications and published papers on *Smilodon* growth series and *Smilodon* ectocuneiforms. Her stories and darts prowess were legendary among her contemporaries at the Page Museum, by whom she will be sorely missed.



Right: Antonia Tejada-Flores in Pit 91.

Happy



Holidays!

Because this is the last R&C Newsletter for calendar year 2012, the R&C Staff takes this opportunity to wish all of you a happy and safe holiday season and a bright and productive New Year.



The *Research & Collections Newsletter* is issued five times per year, in January, March, May, September, and November, by the Research and Collections staff of the Natural History Museum of Los Angeles County.

Editor: Dr. Joel W. Martin, Curator of Crustacea and Chief of the Division of Invertebrate Studies.

Layout and Photo Editing: Phyllis Sun, Marine Biodiversity Center.

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