RESEARCH & COLLECTIONS

SUMMER 2014

Collection News

Rancho La Brea

Veterinarians Dennis Lawler, Adjunct Research Associate, Illinois State Museum, Springfield, Illinois, and Gail Smith, Professor of Veterinary Surgery, University of Pennsylvania, Philadelphia, Pennsylvania, visited the Page Museum collections to examine some pathologic canid specimens. They are working on a research project examining hip dysplasia in various dog breeds. They are looking for signs of heritable diseases of the acetabulum and femoral head and for joint disorders such as hip dysplasia in the dire wolf. Researchers Marc Baum and Manjula Gunawardana from Oak Crest Institute of Science in Pasadena visited Hancock Park in April to collect samples of surface asphalt from Pits 3 and 4. The purpose of their sampling was to extract microbial DNA directly from the asphalt using a novel method that they developed in house. The asphalt in Hancock Park was compared to asphalt seeps in Ventura County in a recent publication: Gunawardana, Manjula, et al. 2014. Isolation of PCR quality microbial community DNA from heavily contaminated environments. Journal of Microbiological Methods, 102: 1-7.

Mineral Sciences

Mineral Sciences acquired a gold nugget from Los Angeles County. Purportedly found near the East Fork of the San Gabriel River, the nugget weighs 3.2 troy ounces (99.7 grams) and is a remarkable size for the locality.

History

T: Vertebrate Paleontology staff and volunteers show excitement over the newest fossil whale skulls that were collected locally in Los Angeles County.
B: A closer look at the dorsal view of a fossil baleen whale skull.

Seaver Center Launches Historic Photograph Database

The Seaver Center has launched an online database of digital historic photographs from the NHM collections housed in the Seaver Center. Images are keyword searchable through the Seaver Center welcome page by clicking *Search the Digital Collections* or go to http://collections.nhm.org/seaver-center/. Currently more than 14,000 images are available, as a result of the work of Project Database Manager Brent Riggs, with images from the General Photograph collection, the Frederic Hamer Maude collection and the Warren C. Dickerson collection. Brent is targeting other collections to be made available in the coming months.

Shown are several of the students with Collections Managers Betty Uyeda and John Cahoon.

Visitors from USC's Graduate Heritage Conservation Programs

Trudi Sandmeier, Director of the Graduate Heritage Conservation Programs at USC's School of Architecture, visited the Seaver Center on March 25th with her students. Sandmeier visits yearly as she finds it very useful to introduce these archival resources. A couple of weeks later one of her students successfully filled some of the missing pieces of her research projects through the use of the Center's business incorporation records. Shown above are several of the students with Collections Managers Betty Uyeda and John Cahoon.

Vertebrate Paleontology

The Vertebrate Paleontology department is pleased to announce the new acquisition of five baleen whale skulls, Cetotheriidae, from the Portuguese Bend area of Palos Verdes. The recent news coverage of a sperm whale skull found at the Chadwick Elementary School campus spawned a flurry of calls to our museum about neighboring finds. One of the calls came from Dennis Rydgren of Richmond, whose uncle collected these skulls from the middle Miocene Altamira Shale Member of the Monterey Formation. This area is known to produce spectacular fossils and we are pleased to have the addition of these specimens to our collections.

Field Work

Herpetology

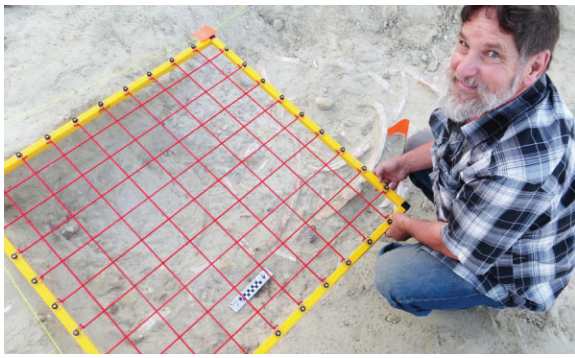
Greg Pauly preserving specimens in the shade of an abandoned mine building in the Kingston Mountains. Photo courtesy of Adam Clause and submitted to LACM-Herpetology Photographic Collection.

Mojave Desert Herpetological Sampling

From May 26 to June 1, Greg Pauly and colleagues from the University of Hawaii (Bob Thomson, Amber Wright, and Anthony Barley) conducted fieldwork at multiple localities in the Mojave Desert. The team is interested in conducting a comparative landscape genomics study to understand the relative impacts of distance and various habitat characteristics on genetic connectivity. This trip was designed to acquire samples from a broad geographic area to provide preliminary data for a future NSF grant submission. Sampling was conducted at Pisgah Crater, the Providence Mountains, and the Kingston Mountains. The group collected 104 tissue samples and 37 whole body specimens that are now all deposited in the Museum. For the final four days of the trip, the team was joined by another 14 herpetologists who assisted in collecting. This group included researchers from UC Davis, University of New Mexico, Louisiana State University, and the University of Georgia.

Greg Pauly and Research Associate and UCLA professor Brad Shaffer led their UCLA Field Biology class on a field trip to the Old Woman Mountains in the southeastern Mojave Desert, May 19–25. The Old Woman Mountains are incredibly undersampled. Although there are over 31,000 reptile and amphibian museum specimens from the Mojave Desert, only 2 of these are from the Old Woman Mountains. This is especially surprising given that this range is biologically interesting because it reaches a high elevation and is in the transition between the Mojave and Sonoran Deserts. The goal of the trip was to conduct a herpetological inventory of this range. Over the seven days of the survey, the group made over 1000 sightings that included 23 species, collected 38 specimens, and contributed 91 photo-documented observations to the RASCals project. Two interesting finds included range extensions of the Desert Night Lizard and Mojave Rattlesnake. The write-up of the inventory is being prepared for submission to the Bureau of Land Management.

Vertebrate Paleontology



Dr. Samuel A. McLeod holds a square meter grid over a portion of the exposed Sharktooth Hill Bonebed for photography.

Dr. Samuel A. McLeod is the project manager for a new museum quarry initiative at the Sharktooth Hill Bonebed. The Sharktooth Hill Bonebed is a relatively thin but laterally extensive fossil-rich horizon in the upper part of the marine middle Miocene Round Mountain Silt (15.5 mya). The Sharktooth Hill Bonebed is exposed in the hilly region to the northeast of Bakersfield, Kern County, California, and yields a local fauna that is a global standard of comparison for marine middle Miocene assemblages. Historically, our museum has been involved in fieldwork at the Sharktooth Hill Bonebed since the 1960's. Recently we have entered into an agreement with private land owners, Sean and Lisa Tohill, to systematically excavate a quarry on their property.
On 2–4 May, Dr. Samuel A. McLeod and Vanessa R. Rhue invited volunteers, Karen Kent and grad students Alexis Yang and Mairin Balisi,

A trusty racer snake looks on while volunteer, Karen Kent, and landowner, Lisa Tohill, excavate a large great white shark, Carcharocles megalodon, tooth.

(continued) to assist with the layout, excavation, and screening of our 30 square meter quarry. Photogrammetry was also done at the site to render 3D images of the exposed bonebed. We thank our volunteers for their focused assistance, which allowed us to begin exposing the quarry. Among the initial in situ finds were baleen whale (Mysticeti), dolphin (Odontoceti), mako shark (*Isurus*), and an impressive tooth of the great white shark, *Carcharocles megalodon*.

HGM 41H-III-0405, Sapeornis chaoyangensis

Dinosaur Institute

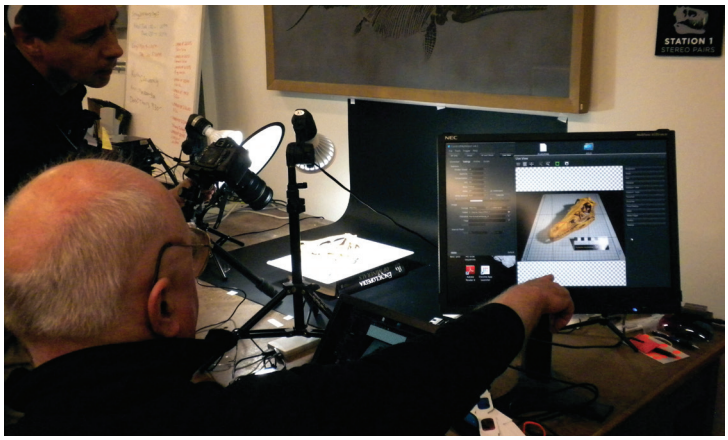
Stephanie Abramowicz at the Henan Geological Museum, China.

Stephanie Abramowicz, Dinosaur Institute illustrator, returned from China in late March, af er 5 weeks photographing specimens for Dr. Chiappe's upcoming new book about the Early Cretaceous birds of the Jehol Biota, China. Her visit was highlighted by the unexpected opportunity to visit and photograph early birds at the Henan Geological Museum, in particular an extraordinary specimen of *Sapeornis chaoyanensis*. This trip also included 3 weeks of final detailing on many of the remaining specimens by Maureen Walsh, Assistant Collections Manager of the DI, while at the Beijing Museum of Natural History. To close, Dr. Chiappe and his co-author, Dr. Meng Qingjin, met to finalize the details of their upcoming book.

New Mexico

The Dinosaur Institute revisited two sites in New Mexico during the first week of May to finalize excavation planning and permits. Dr. Luis Chiappe, Justin Hall, Jose Soler, and Maureen Walsh met with BLM representatives to plan exit strategies for fieldwork in July and August 2014.

Meetings, Workshops, and Presentations



A behind the scenes look at the stereo pair photography workshop hosted by the Natural History Museum of Utah.

Vertebrate Paleontology

7th Annual Fossil Preparation & Collections Symposium

Vanessa R. Rhue and Vertebrate Paleontology volunteers Evan and Karen Kent traveled 4–6 April to Salt Lake City, Utah, for the 7th Annual Fossil Preparation & Collections Symposium. The meetings were hosted by the Natural History Museum of Utah and consisted of platform presentations, posters, workshops, collections tours, and exhibit tours. A field trip to Utah Field House Museum of Natural History and Dinosaur National Monument in Vernal, Utah, rounded out the conference. The talks covered an array of subjects from housing vertebrate fossils to field collecting techniques to lighting sources and 3D-printed cradles. Some of the workshop highlights included rigging systems, exhibit mount making, specimen photography, volunteer round table, and microfossil preparation. The conference boasted the greatest attendance thus far, with attendees from around the world.

Evan & Karen Kent along with Vanessa R. Rhue pose in front of the Carnegie Quarry at Dinosaur National Monument.

Research Library

Chief Librarian Richard Hulser represented NHM at the annual membership meeting of the Biodiversity Heritage Library (BHL) at the New York Botanical Gardens in the Bronx, New York earlier this year. The Biodiversity Heritage Library (BHL) is a worldwide consortium of natural history and botanical libraries that cooperate to digitize and make accessible the legacy literature of biodiversity held in their collections and to make that literature available for open access and responsible use as a part of a global "biodiversity commons." More information about BHL can be found at their website www.biodiversitylibrary.org/.

Herpetology

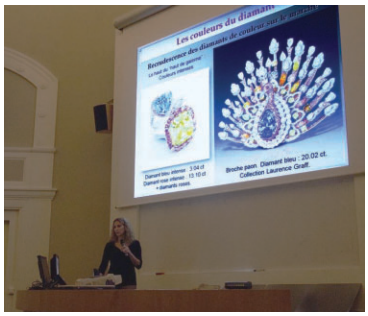
Greg Pauly traveled to CSU Channel Islands for the Southern California Academy of Sciences meeting May 2nd and 3rd. Greg gave a talk on the RASCals citizen science project as part of a citizen science symposium organized by Lila Higgins (NHM) and Sabrina Drill (California Naturalists). The following day, Hayden Kirschbaum, high school student in Herpetology, gave a talk as part of the SCAS Research Training Program. Hayden's talk focused on his and Greg's ongoing research on the ecological impacts of non-native Italian Wall Lizards in Coastal San Pedro.

Dinosaur Institute

Erika Canola in Utah

Presentation at the Southern California Paleontological Society

On April 13, 2014, Erika Canola of the Dinosaur Institute gave a presentation at the society's monthly meeting held at the La Brea Tar Pits. She discussed field work and lab preparation processes on fossil specimens collected in Utah.



Mineral Sciences

Eloïse Gaillou was an invited guest and lecturer for a French Gemological Conference organized to celebrate the 30 years of the gemology university diploma (DUG) created by Professor Bernard Lasnier and now run by Professors Emmanuel Fritsch and Benjamin Rondeau from the

BioSCAN

Southern California Academy of Sciences

Research students working with the BioSCAN project presented a poster and gave two talks at the 107th Annual meeting of the Southern California Academy of Sciences at California State University Channel Islands on May 2–3. The poster was presented by Tochukwu Madu and Edwin Lee (with student coauthors Jennifer Camello, Janie Chen, Lindsay Hafen, and Christina Li) and summarized the BioSCAN survey approach to assessing L.A. biodiversity. The two talks dealt with two of the molecular genetic aspects of the BioSCAN study. Edwin Lee (with student coauthors T. Madu, J. Chen, C. Li, and J. Camello) presented "Molecular analysis of local and global *Dohrniphora cornuta* (Insecta: Diptera)," which summarized initial work towards assessing the genetic diversity of *D. cornuta* both locally and using international specimens in NHM's collection in order to explore the possibility that the species is an introduction from the Old World. Janie Chen (with coauthors J. Camello and L. Hafen) presented "*Wolbachia* infection rates in Los Angeles Basin humped-back flies (Insect: Diptera: Phoridae)," which introduced the first results from molecular surveys for the intracellular microbial parasite *Wolbachia* in *Megaselia* flies captured in the BioSCAN samples. The *Wolbachia* project is part of a collaboration with Michael Turelli at University of California Davis.

USC Undergraduate Symposium for Scholarly and Creative Work

The USC Undergraduate Symposium includes undergraduate research and creative work from across the entire USC campus. In this year's symposium, BioSCAN research students presented the poster "Biodiversity studies using a large-scale insect survey in the Los Angeles Basin." Undergraduate authors of the poster are: Tochukwu Madu, Jennifer Camello, Janie Chen, Lindsay Hafen, Edwin Lee, and Christina Li. The poster was one of two presentations singled out by the symposium organizers to highlight the breadth and importance of all the projects appearing at the event.

Marine Biodiversity Center

Southern California Academy of Sciences

A group of undergraduate research students from USC presented a talk at the 107th Annual meeting of the Southern California Academy of Sciences at California State University Channel Islands on May 3. The talk, "Using natural history museum collections to better understand the genetic diversity of endangered fairy shrimp (Crustacea: Branchiopoda: Anostraca)," was presented by Christina Li, with student coauthors Janie Chen, Jennifer Camello, and Lindsay Hafen. This study leveraged off inventory and cataloging work by previous students in the lab, and investigated the feasibility of getting DNA sequence data from fairy shrimp collections that have come from regulatory agency-mandated sampling procedures.

(continued) University of Nantes. Subjects such as polycrystalline black diamonds, treated diamonds, updates on pearls, sapphires from Myanmar, and gems from East Africa were part of the program. Dr.

Gaillou gave her first talk during a gala evening at the Muséum d'histoire naturelle de Nantes on the topic of colored diamonds (see picture above). Her second talk was about her research on pink and blue diamonds.

External Funding

Research Library

The Research Library received a grant to participate in a project to digitize and make publicly available audiovisual materials of historic importance to California. Among the items approved for digitization are several film clips of the La Brea Tar Pits re-opening of Pit 91 for excavation on Friday the 13th in June, 1969. They are part of a collection of films and audiotapes produced by Maurice Machris and generously donated to the Museum. Chief Librarian Richard Hulser and Archivist Cathy McNassor are curating and cataloging the collections being digitized. The digitized audiovisual materials will be available through the Internet Archive later in 2014. The grant is being managed through the offices of California Light and Sound at University of California - Berkeley and funded through the Institute for Museum and Library Services, the National Endowment for the Humanities, and the California State Library.

BioSCAN

Princeton Internships in Civic Service

The BioSCAN project was lucky enough to be chosen to be the recipient of a student for the summer supported by the Princeton Internships in Civic Service program. The program, run by Princeton, allows undergraduates to explore potential careers in public service and non-profits. Cordelia Xie, a Princeton undergraduate, joined us for 10 weeks at the beginning of June. Though her intended major is in public and international affairs, she was quickly pulled into the daily responsibilities of the BioSCAN project, thanks to training from the "senior" BioSCAN students and staff.

USC Research funding for students

Undergraduate research work is a core component of the BioSCAN project. Undergraduates from USC (and elsewhere) are the people who do the real labor for BioSCAN: sorting the avalanche of insect samples and interacting with the public in the Nature Lab. However, they also contribute directly to the research work itself. In recognition (and support) of that work, USC has made three awards to BioSCAN research students that total $18,500 coming from the Undergraduate Research Associates Program (to Lindsay Hafen and Allara Uota), the Rose Hills Summer Research Fellowship (to Janie Chen), and the Provost's Undergraduate Research Fellowship (to Jennifer Camello). By enabling research students to work on BioSCAN projects for extended times during the summer, these awards will help BioSCAN to make significant progress on the science side of the project.

Student Mentoring and Research

Vertebrate Paleontology

TL: Vertebrate Paleontology intern, Paige Harris, works on housing specimens from the McKittrick asphalt seeps for use in a special museum outreach event.

TR: Vertebrate Paleontology intern, Heather Weitz, is cutting specimen labels with photos for placement in our oversize basement storage.

Dr. Samuel A. McLeod and Vanessa R. Rhue are pleased to announce two new undergraduate interns for the Spring and Summer of 2014. Heather Weitz and Paige Harris are both completing their degrees at Biola University, La Mirada, California. Heather started her internship last March, when she wanted to gain some museum experience to supplement her archaeology minor. She received her B.A. in English this past May and has intentions to pursue a career as a published author. We are very appreciative of Heather's assistance with an oversize storage labeling project and her careful attention to detail when preparing specimens in the lab. Paige began volunteering with us last fall, assisting staff with the curation of fossil whale specimens in our basement. She returned in June 2014 to start an internship for her Anthropology major. Paige is interested in both museum curation and library science. She intends to pursue a master's degree in one of those fields. In the meantime, she is getting some hands-on experience in museum collections care and applying her research and writing talents to the development of our department website.

Herpetology

USC work study student Azia Willis working with Neftali Camacho on cataloging specimens.

In May, Herpetology said goodbye to work study student Azia Willis. Azia had been working in the section since September and had been of great help. She played a major role in cataloging and inventorying our large microscope slide collection. She also helped catalog recent donations and helped organize the research library. We hope to get her back in September.

In February three students from Saddleback College visited the section to look at skinks belonging to the genus *Trachylepis* for a research project. They showed great interest in interning this summer in Herpetology and Ichthyology. Rachelle Brown, Brett Schiller and Adam Rey began

Saddleback College interns working in Herpetology. Rachelle Brown, Adam Rey and Brett Schiller are unpacking a recently returned skeletal specimen and tying tags on recently acquired Italian Wall Lizard specimens.

(continued) interning in May. With the recent increase in acquisitions to the section the interns have been helping in tagging, cataloging and shelving incoming specimens.

BioSCAN

U.C. Irvine Introductory Biology Collaboration

U.C. Irvine has a problem: there are so many students in their Introductory Biology program that they are unable to offer a lab portion for the course. That didn't seem good enough for Catherine Loudon in the Ecology & Evolutionary Biology department. For an experimental subset of the students, Dr. Loudon hooked up with NHM's BioSCAN project to provide a multiweek biodiversity activity. Unsorted BioSCAN insect samples were loaned out to U.C. Irvine, and the students were oriented in insect diversity and did preliminary sorting of the samples. Basing the experience on real research specimens gave an edge of reality to the work that just can't be matched by a standardized lab "exercise." Students and instructors rated the lab highly.

UCLA/Philips senior colloquium project

A class of undergraduates from UCLA (along with other students) completed a senior colloquium in June that was facilitated by the BioSCAN project. Travis Longcore (faculty at USC and UCLA, as well as an NHM Research Associate) led the project, designed to test new lights from Philips Lighting for their propensity to attract insects. The intent of Philips is to design special lights that can be used at night without attracting insects, since a rise in insect-borne diseases is one of the unfortunate side effects of rural electrification in developing countries. The UCLA class designed field experiments deploying a variety of light traps to test the bulbs' effectiveness. BioSCAN collaborated by providing the insect identification training that was needed for the students to be able to quantify the catch from their insect traps. The results are expected to be published this autumn.

Public Outreach

BioSCAN

Bug Fair

Hewing to the theme of this year's Bug Fair, the BioSCAN team presented information on local ant species (despite the rarity of ant samples from BioSCAN's traps, which collect mostly flying insects). To give us some engaging displays for the public, a BioSCAN group collaborated with UCLA graduate student Doug Booher to make molten-metal castings of ant nests. Without making a solid cast, there's really no way to visualize the amazing arborescence that ants create underground. To read more about the desert casting expedition, check the BioSCAN blog at: http://research.nhm.org/bioscan/bioscanbuzz/?p=393

First Friday: Bees

June 7th's "First Friday" had a bee theme, so BioSCAN's Lisa Gonzalez and Emily Hartop provided a bee-centered beehind-the-scenes tour. Starting in the Nature Lab, Lisa clued in the visitors to the amazing diversity of bees (yes, there are hundreds more species of bees in Los Angeles besides the European honeybee). Af er a tour through the Nature Garden to see bee-friendly plants, solitary bee hotels, and

(continued) ground-nesting bee habitats in the Pollinator Garden, attendees got to sample a diversity of different honeys with Emily in the Edible Garden.

La Brea

Over the past few months the Rancho La Brea Department has been collaborating with the Education Department to help train new volunteers. Lead Preparator Carrie Howard gave a presentation to the docents and volunteers on May 17th on a Project 23 excavation review, and all the groups have received several in depth behind-the-scenes tours. Preparator Laura Tewksbury also gave two presentations to Junior Scientists on May 10th. Fif een kids and their chaperones in each session were treated to a behind-the-scenes look at fossils still in situ in Box 14 at Project 23 and in Pit 91. Laura discussed the day-to-day life of being a paleontologist at Rancho La Brea, as well as the kinds of plants and animals that we find at the site. She particularly focused on what bones can tell us about animal lifestyles and how microfossils can help us understand the local environment at different times over the past 40,000 years. The monthly Junior Scientist Program is specially designed for 6 to 9 year-olds and is free with Museum admission.

On May 2nd Rancho La Brea was the topic of discussion at the Natural History Museum's First Fridays. Page Museum staff Aisling Farrell and Gary Takeuchi led tours of the Age of Mammals hall at NHM, focusing their discussions on specimens on exhibit from the Rancho La Brea collections. Dr. John Harris, Chief Curator of the Page Museum was the guest speaker on "Back to the Future: The Scientific and Cultural Importance of Rancho La Brea."

BR: Mary Stecheson (IP) talking to future paleontologists about fossils of the Santa Monica Mountains.

B: Phyllis Sun (BioScan) and Science Festival visitors learning about insects of the Santa Monica Mountains.

Science Festival

Malacology, Invertebrate Paleontology, Herpetology, Polychaetes and BioSCAN

The 5th Annual Science Festival was held on Saturday, April 26. R&C participants included Mary Stecheson (IP) who exhibited various fossils from the Santa Monica Mountains, Leslie Harris (Polychaetes) who featured invertebrates found in association with whale falls, and Greg Pauly (Herpetology), Nef ali Camacho (Herpetology) and Estella Hernandez (Ichthyology) who highlighted reptiles of the Santa Monica Mountains. Greg also led three herpetology hikes, Kathy Omura and Phyllis Sun (BioSCAN) displayed insects of the Santa Monica Mountains, and Lindsey Groves (Malacology) featured introduced and native freshwater and terrestrial mollusks of the Paramount Ranch area, including live specimens of the New Zealand Mudsnail *Potamopyrgos antipodarium.* Many thanks to all of the volunteers who assisted this year!

Herpetology

David Huckaby, professor of Vertebrate Zoology at CSU Long Beach, visited Herpetology with his class on April 25th. Nef ali Camacho provided a tour with highlights that included the Golden Toad, Giant Chinese Salamander, King Cobra, and Gaboon Viper.

History

L: Shown here is one of the groups mesmerized by rare film frames of an early Mickey Mouse and a metal comic strip engraving plate.

Collections Manager Beth Werling provided insights on April 4th about early on-location movie-making in L.A. locales as a part of the First Fridays' feature "Tracking and Trapping L.A.'s Wildlife."
Collections Manager Betty Uyeda presented a talk on "Early Street Names of Los Angeles" at the Alliance Board's luncheon April 9th in the Otis Booth Pavilion. Guests capped off the af ernoon with a featured tour of the Center's map collection.

Walt Disney and the Art of Animation

On Saturday, May 3rd, the Seaver Center opened its doors with a presentation of drawings, posters and photographs on Walt Disney and the art of animation as a part of the Scavenger Safari day. Collections Managers Betty Uyeda, Brent Riggs and John Cahoon welcomed six tour groups.

William Estrada's History Media Projects

Dr. William Estrada, Curator and Chair of the History Department, has had an active Spring with several history projects. He was interviewed by KCET on the 20th anniversary of the landmark Shades of L.A. photographic history project initiated by Carolyn Kozo Cole and Kathy Kobayashi of the Los Angeles Public Library. A video that includes Dr. Estrada's interview segments was published May 23rd at http://www.kcet.org/arts/artbound/counties/los-angeles/los-angeles-public-library-photo-archives-shades-of-la.html.
Dr. Estrada's essay that appears in the newly published book Union Station: 75 years in the Heart of L.A. is also available online at http://thesource.metro.net/2014/05/27/reflections-on-union-station-an-essay-by-william-d-estrada/.
He was also interviewed last month by Univision Los Angeles for a story on the legendary 19th century California bandit Tiburcio Vásquez. The Spanish-language video can be seen at http://vimeo.com/95556791.

Volunteer and Research Associates

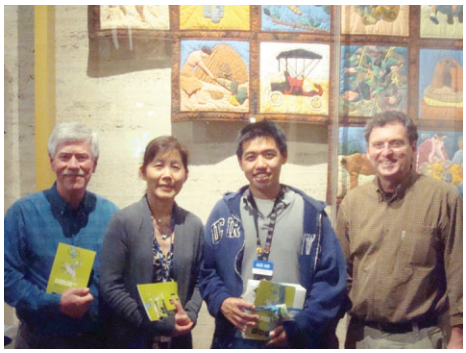
Vertebrate Paleontology

VP 2013-2014 Volunteer of the Year, John Kilburn, prepares an important fossil right whale skull from Lompoc, California.

The Vertebrate Paleontology staff honored long time volunteer John Kilburn as our 2013–2014 VP Volunteer of the Year. John has dedicated over three years of volunteer service to the preparation of a single specimen, namely a fossil right whale skull from Lompoc, California. Many hours have been given to the careful removal of matrix from this fossil, which was preserved in an extremely hard rock. Thank you, John, for your excellent service. Your years of preparation work will allow for the scientific description of this important specimen in our collections. The Vertebrate Paleontology staff welcomes several new volunteers to our department.

Mairin Balisi, Ridlee Dunlap, Nikki Elder, Patrick Gillespy, Rachel Hernandez, Brandon Hupka, Blanca Ponce, Izchel Moreno, Andy Rodgers, Edson Ponce, Sophie Wang, and Sarah Zonis have all been accepted into our volunteer program this spring and summer. We appreciate their patience and excellent eye sight as they process matrix from the Sharktooth Hill Bonebed. The picked matrix produced a variety of teeth from sharks and rays such as requiem shark, Carcharhinidae, hammerhead shark, *Sphyrna*, cow shark, Hexanchiformes, basking shark, *Cetorhinus*, sand shark, Carchariidae, dog fish shark, *Squalus*, angel shark, *Squatina*, white shark, Lamnidae, and sting rays, Myliobatiformes...just to name a few.

History



Shown here is consummate volunteer Richard Thai with the staff from the Seaver Center.

The History Department honored two of its volunteers, Christy Ann Evans and Richard Thai, with Outstanding Achievement awards during the Annual Volunteer Recognition Night in April.

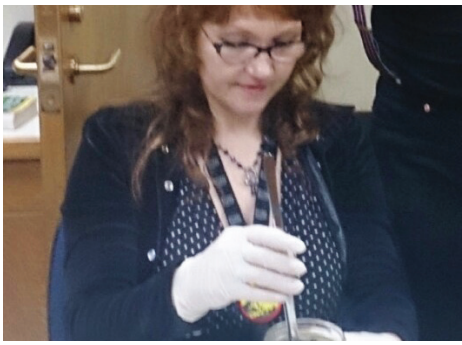
Esperanza Gutierrez is a dedicated NHM volunteer who has been helping the Seaver Center since last November. Since then she has been steadily tackling a collection of L.A. County business incorporation records that date from 1920s and 1930s, creating an inventory database to aid researchers to find what they need. Her work has proven invaluable for a jubilant researcher when a hunt for a certain realty company recently turned up in Esperanza's new inventory!

Conservation

Jacqueline Alvarez, a recent graduate of UCLA's Department of Anthropology, is completing a volunteer internship in the Conservation Section in preparation for pursuing graduate training in the field of conservation. Over her eight week internship, she has been assisting the conservators with integrated pest management and has documented and treated a previously infested African drum.

Rancho La Brea

On Tuesday April 22nd the Natural History Museum celebrated Volunteer Recognition Night. The Rancho La Brea department nominated Herb Schiff for volunteer of the year. Herb was also awarded his 5 year pin. Herb's tireless work helping with curatorial duties in the collections has been invaluable. In particular, he has completed several projects making support cradles for delicate and heavy specimens. Thank you Herb!



Herpetology

Lin Rhys joined the section of Herpetology in the Fall of 2013. Since then, Lin has been involved with cleaning skeleton mounts, tagging specimens, organizing the library, consolidating the teaching collection, and data entry. She has become a great asset to the section.

Research Associate Steve Goldberg retired this year from Whittier College. Steve has been a Research Associate in the Section of Herpetology since 1971. Over this period, Steve has consistently been the most active research associate. He regularly visits the collection, using specimens for his research on gut parasites and reproductive condition. Over the years Steve has contributed multiple thousands of specimens to the collection and donated many books to the section library. In the past few months alone, Steve contributed over 150 specimens and 25 books to the section. With his retirement from Whittier, we look forward to more frequent visits and even more active research with the collection.

Distinguished Visitors

Malacology

Doug Eernisse (CSUF) visited Malacology in March to examine NE Pacific limpets. Daniel Muhs (USGS Denver) was the noon-time seminar speaker on March 27th and also spent time comparing Pleistocene invertebrates with Recent species that day and on a return trip in April. Ángel Valdés (Calif. Poly Pomona) made three research visits in March, April and May, twice with students John Berriman (CSULA) and Tabitha Lindsay (CPP), to use the SEM and examine nudibranchs. Tabitha also visited again with Matthew McPhillips and Craig Hoover, both from Cal Poly Pomona, to once again sample nudibranchs for sequencing work. Jann Vendetti (CSULA) visited the collection in May to examine saccoglossan specimens for research purposes, Bethany Ader (Cogstone Research Management) delivered a suite of Pleistocene invertebrates in early May collected in an area near the Page Museum for identification, Xiaoshen Yin (USC) continues to utilize the Malacology camera set-up for oyster photography, and Michael Kay (Applied Earthworks, Pasadena) visited Malacology in June to compare Holocene mollusks from Guatemala with Recent specimens for a research project.

Vertebrate Paleontology

The Vertebrate Paleontology department hosted a number of researchers this Spring from around the world. Dr. Steve Edwards of Contra Costa County Parks visited our collections on 17 April to look at our fossil horses from the Dove Spring Formation. Dr. Jorge Velez-Juarbe, a postdoc at the Cooper Center, visited our collections on 16–18 April as part of his research on fossil sirenians. Eric Scott of the San Bernardino County Museum visited our collections in April to continue his research on fossil horses. Dr. Naoki Kohno of the National Museum of Nature and Science, Japan, visited our collections from 9–12 June to examine our holotype specimen of *Neoparadoxia cecilialina*. Dr. Christy Hipsley of the Museum für Naturkunde, Berlin, visited our collections on 5 May. Christy works on amphisbaenians, and she examined our holotype specimen as part of her ongoing research. Fernando Manuel Salinas-Marquez, a graduate student of the UABC in Ensenada, visited the collections 9 June to continue his work with Dr. Lawrence G. Barnes on fossil dolphins. Mairin Balisi, a graduate student at UCLA, visited our collections several times in April as part of her research on carnivores. Reagan Furbish, a graduate student at San Diego State University, visited our collections in April to look at our fossil pinnipeds.

Rancho La Brea

On May 22nd Chief Curator Dr. John Harris gave a special tour to a group from Jordan who were visiting cultural sites and museums in California. The delegation was made up of people who work for museums, the Ministry of Antiquities in Jordan, and the USAID Tourism Development Project. On May 27th Steve Gibbons from the National Park Service visited Hancock Park as part of the National Natural Landmark inspection.

Dinosaur Institute

Angela Delgado Buscalioni examining Fruita material from the Jurassic of Colorado.

Angela Delgado Buscalioni, a professor in the Department of Biology at the Universidad Autónoma de Madrid since 1998, specializes in vertebrate paleontology. She obtained her Ph. D. in Biological Science in 1986. Her field of study concerns mainly systematics and morphology. Her core contributions deal with the evolutionary patterns of morphological transformations involved in the macroevolutionary events of reptiles and birds. Some of her approaches have been considered pioneering contributions in theoretical morphology and morphological integration. Over the past 30 years she has taught courses related to evolutionary thinking, its methodological background, the development of systematics, and the history of biology. Convinced of the importance of popularization, she has written books on evolution and a "Guide to Spanish Paleontological Museums." She has also collaborated with linguists and lawyers on workshops related to the evolution of language and on paleontological heritage. Her interest in morphology has been accompanied by a personal curiosity in art; two such contributions could be highlighted: "Modularity at the boundary between Art and Science" (in Modularity, MIT Press, 2005), and a set of visual and musical performances on modularity and on the genesis of form. In her sabbatical stay with us, she aims to work on the interrelationship between science and the arts.

Staff Departures and New Staff

Rancho La Brea

Left to right. Cecilio Garcia and Lucy Filippone in Pit 91.

Cecilio Garcia and Lucy Filippone recently joined the Research and Collections staff at Rancho La Brea as Pit 91 summer excavators. Cecilio graduated from the University of California, San Diego, with a Bachelor's Degree in Anthropology. He has volunteered with us in the Fossil Lab and Project 23 excavations for the last year. He has also worked as a Paleontological and Archaeological Resource Monitor recovering and preserving fossils and artifacts on several construction developments for a private consulting company in the southern California area. Lucy graduated from the University of California, Los Angeles, with a Bachelor's Degree in Ecology, Behavior, and Evolution. She has volunteered with us for a year and during that time gained invaluable experience with the large salvage effort, Project 23. She excavated fossils, prepared them in the Fossil Lab and cataloged and curated many specimens for the collections. Welcome Cecilio and Lucy!

Invertebrate Paleontology

Mary Stecheson initially joined the Museum in 2003 on a NSF Collections Grant. For the past 7 years, Mary managed the day-to-day collections activities at both the onsite and offsite Invertebrate Paleontology facilities as Collection Manager until sailing off at the end of May on new adventures that marked the beginning of her retirement. Many of you helped with the "Invert Paleo Collections Move" last year and recall the mammoth undertaking of packing the collections, library, and all. Mary was a tremendous trooper through it all, which did not end with the move, but continued with unpacking into the new 10,000 sq. f . facility. We miss her steady hand at the tiller, but at the time of this writing, Mary is sailing the fair winds of Puget Sound!

Marine Biodiversity Center

Our beloved psun, aka Assistant Collections Manager Phyllis Sun, went "thattaway." Phyllis joined our lab as a work-study student in Fall 2008, and over the following few years she photographed our Malacology and Invertebrate Paleontology type specimen collections, prepared line drawings, created project logos, and much more. In 2011 she graduated from the USC Roski School of Fine Arts. Her design, photography, and amazing management skills moved her to become the MBC ACM. She became an accomplished invertebrate zoologist and entomologist, as well as an awesomely effective personnel manager. Her enthusiastic squeal of delight is missed by all. Her labmates are living vicariously through her postcards from Japan, Shangai, and beyond as she travels the world.

BioSCAN

BioSCAN Project and Marine Biodiversity Center and changing of the guard

Our new students sorting insects from the BioSCAN traps.

At present the BioSCAN Project/ Marine Biodiversity Center are supported by 22 wonderful work-study students, interns, and volunteers. This May five of our most beloved undergrads graduated and moved on to new adventures, a

(continued) few moved to intern positions, and 6 new students joined the lab. Please help us welcome Anayenzi, Ernesto, Jose, Juhi, Tammy, and Jessie. You can meet them and say "hi" to our "old timer" team the next time you pass through the Nature Lab and see them at work at the Nature Lab's Demo Table.

Miscellaneous

Rancho La Brea

During the month of May, the Page Museum's Lake Pit proboscideans were repaired, conserved and painted. The work was done by two consultants from the Canadian company Research Casting International, assisted by two preparators, Karin Rice and Sean Campbell, from the Rancho La Brea department. This extensive restoration included: repair and patches to holes in each of the fiberglass statues, new tails on the male and juvenile mammoths, the American mastodon was re-positioned upright at the west end and the floating female mammoth was secured at the east end. These fiberglass statues were created by sculptor Howard Ball in the mid-1960's and funded by a grant from the Chairman of the Museum's Board, William Sesnon. They have since become Los Angeles icons.
During May this year several media groups buzzed around the tar pits interviewing Chief Curator Dr. John Harris, as well as Project 23 excavation and Page Museum lab staff, about the ongoing work at Rancho La Brea. Several segments also highlighted recent research on *Megachile* bees by NHMLAC staff Anna Holden and USC student Justin Hall. These included Al Jazeera America for their weekly science news show called TechKnow, NPR for their YouTube channel SciFri, Science News for Kids, KSCI-TV Channel 18, and Reuters.
For the first time in seven years, full time excavation will take place in Pit 91 at Rancho La Brea this summer. Beginning June 28 and continuing through September 7, 2014, visitors to Hancock Park and the George C. Page Museum will have the opportunity to view activity in Pit 91 and see new displays of history and discoveries in the refurbished Pit 91 viewing station. The re-activating of Pit 91 is part of the new Tar Pits experience this summer for visitors to Hancock Park.
Pit 91 was dug year-round from 1969 to 1980. The excavation was reopened in the summer of 1984 for two months and proved to be very popular. A program of excavating in Pit 91 in the summers was begun and continued until 2007 when work was placed on hiatus to focus on Project 23.

Recent Publication

Cureton, F., Nikischer, T., and **Kampf, T.** 2014. Lavendulan from the Sterling Mine, Ogdensburg, New Jersey. A new addition to the Franklin-Sterling Mineral list. Mineral News 30(5): 1, 2, 7.

Kampf, A.R., Adams, P.M., Housley, R.M. and G. R. Rossman. 2014. Fluorowardite, $NaAl_3(PO_4)_2F_2(OH)_2(H_2O)_2$, the fluorine analogue of wardite from the Silver Coin mine, Valmy, Nevada. American Mineralogist 98: 804–810.

Kampf, A.R., Hughes, J.M., Nash, B.P. and Marty, J. 2014. Kokinosite, $Na_2Ca_2(V_{10}O_{28})•24H_2O$, a new decavanadate mineral species from the St. Jude mine, Colorado: crystal structure and descriptive mineralogy. Canadian Mineralogist 52: 15–25.

Kampf, A.R., Hughes, J.M., Nash, B.P., Wright, S.E., Rossman, G.R., and Marty, J. 2014. Ophirite, $Ca_2Mg_4[Zn_2Mn^{3+}{}_2(H_2O)_2(Fe^{3+}W_9O_{34})_2]•46H_2O$, a new mineral with a heteropolytungstate tri-lacunary Keggin anion. American Mineralogist 98: 1045–1051.

Martin, J. W., J. Olesen, and J. T. Hoeg (editors). 2014. Atlas of Crustacean Larvae. Johns Hopkins University Press. 370 pp.

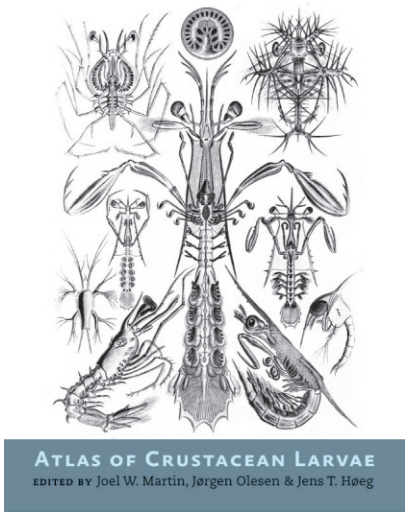
Several years in the making, this large format atlas combines modern imaging techniques with up-to-date information about the morphology and biology of the larval stages of all crustaceans, marine and freshwater, living and extinct. The 20 publications listed below with J. W. Martin as author or co-author are contained among the 55 chapters in this book.

Martin, J. W., J. Olesen, and J. T. Høeg. 2014. Introduction. Pp. 1–7 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W., J. Olesen, and J. T. Høeg. 2014. The Crustacean Nauplius. Pp. 8–16 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W., and J. Olesen. 2014. Introduction to the Branchiopoda. Pp. 27–28 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Olesen, J., and **J. W. Martin**. 2014. Laevicaudata. Pp. 47–50 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.



Høeg, J. T., and **J. W. Martin**. 2014. Introduction to the Thecostraca. Pp. 97–99 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Huys, R., J. Olesen, A. S. Petrunina, and **J. W. Martin**. 2014. Tantulocarida. Pp. 122–127 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W. 2014. Pentastomida. Pp. 135–137 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W. 2014. Introduction to the Malacostraca. Pp. 174–175 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Olesen, J., T. A. Haney, and **J. W. Martin.** 2014. Leptostraca. Pp. 180–184 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W. 2014. Introduction to the Peracarida. Pp. 194–195 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Gerken, S., and **J. W. Martin.** 2014. Cumacea. Pp. 216–218 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W. 2014. Introduction to the Eucarida. Pp. 219–220 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W., and J. Gomez-Guttierez. 2014. Euphausiacea. Pp. 220–225 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W., and V. Kutschera. 2014. Amphionidacea. Pp. 226–229 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W. 2014. Introduction to the Decapoda. Pp. 230–234 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press (scheduled for publication in 2013).

Martin, J. W., M. Criales, and A. dos Santos. 2014. Dendrobranchiata. Pp. 235–242 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W. 2014. Polychelida. Pp. 279-282 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Harvey, A., C. B. Boyko, P. McLaughlin, and **J. W. Martin**. 2014. Anomura. Pp. 283–294 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W. 2014. Brachyura. Pp. 295–310 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Martin, J. W., J. Olesen, and J. T. Høeg. 2014. Summary and Synopsis. Pp. 311–314 In: Martin, J. W., J. Olesen, and J. T. Høeg (editors), Atlas of Crustacean Larvae, Johns Hopkins University Press.

Mills, S.J., **Kampf, A.R**, Christy, A.G., Housley, R.M., Rossman, G.R., Reynolds, R.E. and Marty, J. 2014. Mojaveite and bluebellite, two new minerals from the central Mojave Desert. 2014 Desert Symposium Volume, California State University, Desert Studies Consortium: 165–167.

Plášil, J., **Kampf, A.R.**, Kasatkin, A.V., and Marty, J. 2014. Bluelizardite, $Na_7(UO_2)(SO_4)_4Cl(H_2O)_2$, a new uranyl sulfate mineral from the Blue Lizard mine, San Juan County, Utah, USA. Journal of Geosciences 59: 145–158.

Prothero, D. R., **K. E. Campbell, Jr.**, B. L. Beatty, and C. D. Frailey. 2014. New late Miocene dromomerycine artiodactyl from the Amazon Basin: Implications for Interchange dynamics. Journal of Paleontology, 88(3): 434–443.

Sciberras, M.J., Leverett, P., Williams, P.A., Hibbs, D.E., Downes, P.J., Welch, M.D. and **Kampf, A.R.** 2013. Paratacamite-(Ni), $Cu_3(Ni,Cu)Cl_2(OH)_6$, a new mineral from the Carr Boyd Rocks mine, Western Australia. Australian Journal of Mineralogy 17: 39–44.

Wang, X., Z.J. Tseng, Q. Li, **G.T. Takeuchi**, and G. Xie. 2014. From 'third pole' to north pole: a Himalayan origin for the arctic fox. Proceedings of the Royal Society B: Biological Sciences 281(1787). DOI:10.1098/rspb.2014.0893

Zhang, Y., J. O'Connor, L. Di, Liu, M. Qingjin, T. Sigurdsen, and **L. Chiappe**. 2014. New information on the anatomy of the Chinese Early Cretaceous Bohaiornithidae (Aves: Enantiornithes) from a subadult specimen of *Zhouornis hani*. PeerJ 2:e407;DOI 10.7717/peerj.407.

This publication is a great example of collaborative research and exchange between the Dinosaur Institute and the Beijing Natural History Museum. This bird was one of three Early Cretaceous birds brought to the U.S. from China and prepared by Maureen Walsh while on public view in the Dino Lab during the summer of 2010. This was a rare opportunity for our visitors to watch and enjoy.

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

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