RESEARCH & COLLECTIONS

SPRING 2014

COLLECTION NEWS

Dinosaur Institute

Dr. Albert Prieto Marquez, a world expert in hadrosaur dinosaurs, visited the museum for three months to collaborate with Dr. Luis Chiappe reexamining hadrosaur fossils in the collection. Part of this ongoing research will be the documentation and naming of a new holotype accessioned at the NHM. Dr. Marquez led the study resulting in the 2012 publication "The Lambeosaurine Dinosaur *Magnapaulia laticaudus* from the Late Cretaceous of Baja California, Northwestern Mexico" together with Dr. Luis Chiappe and J. Shantanum in the online journal PLoS ONE 7(6): e38207. doi:10.1371/journal. pone.0038207. This dinosaur was named after former NHM Chairman Paul Haaga, and elements of it can be viewed on the Mezzanine level of the Dinosaur Hall.

Registrar and Conservation

For two weeks in the beginning of December, Head of Conservation Tania Collas and Associate Registrar Katie Kramer installed the artifacts now on display in the *Traveling the Silk Road* exhibit. A big thank you goes out to Anthropology Collection Manager KT Hajeian for all her help during the artifact installation!

Vertebrate Paleontology

The Department of Vertebrate Paleontology acquired a gift from Lisa and Sean Tohill consisting of several hundred fossil marine vertebrate specimens from the Sharktooth Hill Bonebed near Bakersfield, California.
These include several new species and morphological records from the deposit, and are valued additions to our large collection of middle Miocene age fossils from this deposit.

Chadwick School

Howell Thomas acquired from the Chadwick School on Palos Verdes Peninsula a fossil sperm whale skull that was uncovered, along with other fossils, 67 years ago when the school was built. The fossil has been a part of the school's landscaping since that time. About a year and a half ago Martin Byhower, one of the school's science teachers, contacted our Museum for help in identifying the fossils. Among the several specimens that Howell was shown, one in particular, a sperm whale skull, he recommended for acquisition by our Museum. The specimen was transported on 12 February, and this activity received much media coverage. It is more complete than one or two other sperm whale skulls that we have from the Alta Mira shale member of the Monterey Formation on Palo Verdes, and it appears to be a new species. The media coverage of this specimen led to offers by two other families to place in our Museum other important fossils from Palos Verdes.

FIELD WORK

Malacology

A new invasive freshwater snail in Los Angeles County

Reports of hundreds of mysterious “pink blobs” on the retaining walls and lakeside plants at Echo Park Lake last Fall were indicators that another new invasive species has come to Los Angeles. The Channeled Apple Snail, *Pomacea canaliculata* Lamarck, 1804, seems to be firmly established in Echo Park Lake following construction and complete draining of the lake in 2011-2013. It was not reported in the lake prior to construction and was likely introduced when non-native water lillies we re-introduced last August. Lindsey and Cathy Groves collected specimens of the snails and egg masses for Malacology. The Channeled Apple Snail is native to Uruguay and southern Brazil.

Lindsey and Cathy Groves (Malacology and Echinoderms) spent a day collecting invertebrate fossils from the Pliocene/Pleistocene Potato Harbor Formation on Santa Cruz Island with USGS colleague Daniel Muhs. The objective was to find specimens for dating purposes and to compare to previous collections. Lindsey also collected specimens of the endemic landsnail *Helminthogylpta sanctaecrusis* Pilsbry, 1927.

Dinosaur Institute

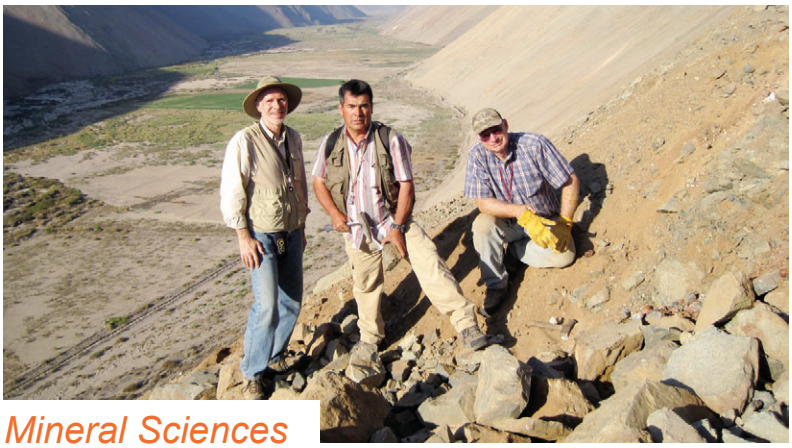
Dr. Martin Sander visited the Dinosaur Institute on a 6 month sabbatical from Institut für Paläontologie, Universität Bonn, Nussallee 8, D-53115 Bonn, Germany from October through February. During this time, a collaborative agreement initiated a joint prospecting expedition into the Augusta Mountains of Nevada from December 13–15 with DI Lab Manager Doug Goodreau, research associate Larz Schmitz, and Dr. Carol Gee. Dr. Sander also gave a research seminar highlighting the evolution of ichthyosaurs during the Triassic and fossils collected this summer in Nevada will enhance the Triassic marine fossil collection at the NHM.

Herpetology

Invasive Italian Wall Lizards in San Pedro

Because of the unusually warm winter, many reptiles have remained active over the past few months. As a result, Greg Pauly has continued his local

(continued)
fieldwork studying the nonnative Italian Wall Lizards in Coastal San Pedro. Joined by high school student Hayden Kirschbaum and his father Kenneth, the three have visited Coastal San Pedro twice over the winter months, finding the lizards active both times. Hayden and Greg have also been spending a lot of time at the museum dissecting specimens to learn about their feeding ecology and potential competition with native lizards.



Mineral Sciences

From February 17th to the 28th, Tony Kampf visited mineral deposits near the city of Iquique in the Atacama Desert of northern Chile. So far, Tony has described 14 new minerals from Chile, and on this trip he brought back more than 50 unknown minerals to study. Joining Tony on the collecting trip were Utah mineral collector Joe Marty and German mineralogist Dr. Jochen Schlüter of Hamberg University. Their hosts were Chilean mineralogists Arturo Molina and Maurizio Dini.

Ornithology

Visiting researchers Dr. Holly Ernest and Dr. Lisa Tell, from the U. C. Davis School of Veterinary Medicine, spent much of 4 and 5 March conducting research on hummingbirds in the Nature Gardens; their research was facilitated by Ornithology Collections Manager Kimball Garrett and by the garden staff (with special thanks to head gardener Richard Hayden). Their study centers on disease prevalence and genetic diversity using single nucleotide polymorphism loci; since a key target species, the Allen's Hummingbird, *Selasphorus sasin*, is abundant here, the Nature Gardens made an ideal field site for capturing the birds, taking measurements, applying unique bands, and taking blood samples. Holly and Lisa caught and processed at least 14 individuals, and we were also able to supply them with several frozen salvaged hummingbirds that had struck windows on our grounds.

Vertebrate Paleontology

In both February and March Lawrence Barnes, with volunteers Sean and Lisa Tohill and Debora Lee, worked at the Tohill's property near Sharktooth Hill in the San Joaquin Valley. They selected and measured an area of the Sharktooth Hill Bonebed that will be excavated by the Museum as part of our long-term collaborative research agreement with Mr. and Mrs. Tohill. They gathered data about the sediments that are both above and below the bonebed at the site, and made observations and photographs of the bonebed at this locality.

Meetings, Workshops, and Presentations

Mineral Sciences

Tucson Gem & Mineral Show

Mineral Sciences staff recently made their yearly trip to the Tucson Gem & Mineral Show. Tucson is actually a series of over 40 separate gem and mineral trade shows that spans more than a month in January and February. Vendors, scientists, collectors and museum staff from around the world attend. Tucson is often the place where new and exciting mineralogical discoveries are unveiled. The museum received a number of wonderful donations from new mines including: gem oligoclase from Kenya, aphthithalite from New Mexico, barite from Morocco and trapiche sapphire from Myanmar. Museums and private collectors also put together exhibits for the public. 2014 was the 60th anniversary of the mineral show, inspiring a theme of "Diamonds, Gold, Silver and Gems." NHM's exhibit featured diamonds, gold and gems from California.

Tucson is also an opportunity for the Society of Mineral Museum Professionals to meet and discuss issues related to museum mineral collections. This year SMMP had a special presentation by Katharine Dunnell of Royal Ontario Museum titled "Social Media in Museums —The New Norm."

For a complete description and beautiful pictures of the Tucson Show visit Mineral Science's blog: http://nhminsci.blogspot.com/. Also, follow us on Twitter: @LA_gems

Dinosaur Institute

Dr. Carole Gee, while on sabbatical from the University of Bonn, presented a lecture on the application of microCT scanning and 3D visualization. This approach provides for the nondestructive internal imaging of pine cones collected from the Late Jurassic of Utah. Her research adds important data related to the growth patterns of conifers found in the Morrison Formation.

Malacology

The 18th Annual gathering of the Southern California Unified Malcologists (SCUM) met at the City of San Diego Marine Laboratory on Saturday, January 25th. Attendees included Malacology staff member Lindsey Groves, associates Jim McLean, Pat LaFollette, Lance Gilbertson, and George Kennedy, and Pacific Conchological Club members Shawn Wiedrick and Lawrence Moser (the PCC meets monthly in the museum).

Rancho La Brea

On February 15th the Page Museum hosted a successful annual meeting of the Western Association of Vertebrate Paleontology (WAVP). It was a full schedule with twenty one talks organized by Research Associate Christopher Shaw and included an afternoon tour of our current Project 23 excavation operation. The abstracts are housed in the Chester Stock Library at the Page Museum.

On February 24th, Dr. John Harris attended a meeting on "The Late Pleistocene and the future of California" in Berkeley, California, that was jointly convened by Heyday Books and the Nature Conservancy of California. The meeting discussed the diversity of the later Pleistocene flora and fauna, the possibilities of re-introducing wolves and grizzly bears in remote areas of California, and the potential viability of proxy species (camels, elephants).

Herpetology

On Saturday, February 8th, Greg Pauly gave a lecture to a number of local LAUSD science and math teachers. The event was organized by Molly Porter as part of the Mobilize Science Professional Development Project, which is run out of the Graduate School for Education and Information Science at UCLA. Greg's lecture focused on use of RASCals data and other data available on iNaturalist to study local biodiversity.

Greg also discussed the RASCals project at Pepperdine University, where he gave a short talk at the National Park Service's annual Stream Team meeting. This meeting is attended by 25-30 biologists and land managers who conduct reptile and amphibian inventory work and conservation in Southern California.

Greg also recently gave a seminar at Loma Linda University discussing his research on mating signal evolution in toads. The day was also spent meeting with Loma Linda faculty and graduate students engaged in herpetology research.

Polychaetes

Leslie Harris, Polychaetes Collection Manager, was an invited speaker at the Aquarium of the Pacific on 23 January. Her topic was "Worm Tales: Green Bombers, Squid Worms, Pig Butt Worms, Zombie Worms, and more." Thanks to the response to this and to a previous talk on "Hitchhiking Aliens" she gave last May, AOP president Jerry Schubel has decided to install a polychaete exhibit. Leslie will act as an advisor for the exhibit. Both a pre-lecture podcast and the presentation are available on the web at http://www.aquariumofpacific.org/multimedia/player/lecture_archive_leslie_harris1
and http://www.aquariumofpacific.org/multimedia/audio

A few weeks later she participated in the Dana Point Ocean Institute's annual Girls in Ocean Science Day on 8 February. Designed to interest junior high and high school girls in the marine sciences, nearly 110 girls participated in hands-on learning sessions and field work on the OI's research boat. Leslie was one of six female scientists leading the workshops, and one of three featured in an article by the Dana Point Times. http://www.danapointtimes.com/fueling-scientific-curiosity/

External Funding

Herpetology and Mammalogy

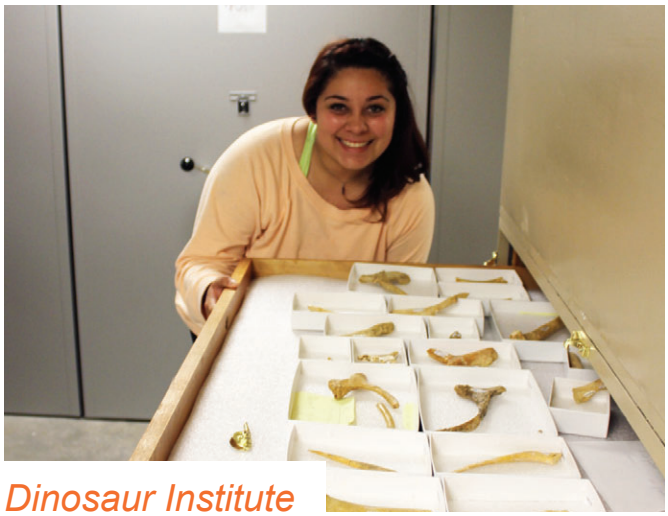
Baldwin Hills Amphibian, Reptile, and Mammal Inventory

Greg Pauly and Jim Dines received a $35,800 sub-contract from USC as part of a biodiversity inventory of the Baldwin Hills. The work is being conducted in collaboration with Museum Research Associate and USC Adjunct Professor Travis Longcore. The Baldwin Hills are an especially interesting area because they are one of the few large regions of open space in the L. A. Basin and are completely surrounded by heavily urbanized regions. Greg will be leading the herpetofaunal inventories, which will involve 10-12 weeks of surveys during spring 2014 and 2015. Jim will lead the mammal inventory, which will involve camera trapping surveys for 18 months, beginning spring 2014. These inventories have an added bonus in that they will provide a detailed look at the species occurring in one of L.A.'s major urban parks. Thus, these results will be especially useful in adding to the understanding of urban wildlife distributions that Greg and Jim are getting through their respective citizen science projects, Reptiles and Amphibians of Southern California (RASCals) and the Southern California Squirrel Survey.

History

The History Department received an archival grant of $32,000 from the John Randolph Haynes and Dora Haynes Foundation to digitize five Seaver Center photographic collections. Finding aids will be created, as well as the addition of 7,000 keyword searchable digital images from those collections to enable public access on the Seaver Center's collection web page. The finding aids will also be available on the Online Archive of California website.

Student Mentoring and Research

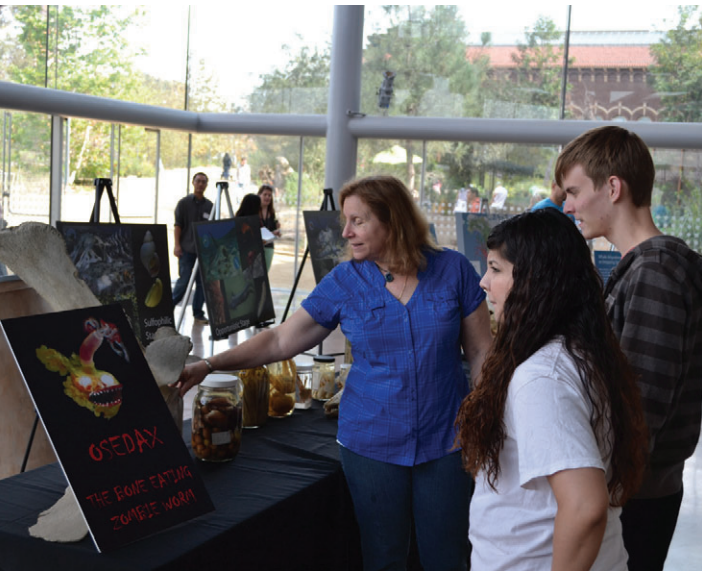


Dinosaur Institute

Danielle Armendariz, a former OEDG graduate, and participant in field trips to Petrified Forest, Utah and New Mexico, completed her internship during the summer of 2013 at Mammoth Hot Springs, South Dakota. She is looking forward to continuing her studies in the geosciences.

Vertebrate Paleontology

Vanessa R. Rhue is pleased to announce that former Vertebrate Paleontology intern Deborah Wold has been awarded a paid internship at The Mammoth Site in Hot Springs, South Dakota. The Intern Scholarship Program at The Mammoth Site offers students training to conduct interpretative tours, educational courses for the general public, museum conservation techniques, molding and casting, cartography, and bonebed excavation. The Vertebrate Paleontology staff congratulates Deb for being one of nine students to receive this noteworthy scholarship for the summer of 2014!



Public Outreach

Anthropology, Crustacea, Herpetology, Ichthyology, Malacology, Mammalogy, Ornithology, Polychaetes, Vertebrate Paleontology, and Research Library

Curators Cupboard: Evolution and our Channel Islands

Nefti Camacho and volunteers Mary Cruz, Hayden Kirschbaum, and Lyn Rhys (Herpetology), Chris Coleman, K.T. Hajeian and volunteers Carolyn Weiss and Hilo Sugita (Anthropology), Jim Dines (Mammalogy), Rick Feeney & Estella Hernandez (Ichthyology) Kimball Garrett (Ornithology), Lindsey Groves (Malacology), Leslie Harris (Polychaetes), Sam McLeod, Vanessa Rhue, Xiaoming Wang, volunteer Stephanie Lapeyre-Montrose, and grad student Nicole Adams (Vertebrate Paleontology) and Jody Martin (Crustacea) participated in *Curators Cupboard: Evolution and Our Channel Islands* on Saturday, February 22nd.

Kimball and Jody led tours of their respective collections and highlighted bird and crustacean faunas from the Channel Islands. Lindsey exhibited Pleistocene invertebrate samples used for establishing paleoecology and paleo-oceanic temperatures and images of the earliest known Pygmy Mammoth from an 80ka terrace on San Miguel Island. He also discussed the geology and marine terrace formation on San Miguel Island with visitors. Rick and Estella displayed various fish species from the Channel Islands including a skeleton of a large Sea Bass and a juvenile Ocean Sun Fish. Leslie and Jim teamed up to exhibit vertebrates and invertebrates associated with whale-fall skeletons found in deep basins around the Channel Islands including the deep-water polychaete *Osedax* sp., aka the Bone-eating Zombie Worm, and whale migrations around the Channel Islands. Sam, Vanessa, Xiaoming, Stephanie and Nicole featured juvenile Pygmy Mammoth molars, tusks, and lower jaw from Santa Rosa Island. Chris, KT, Carolyn, and Hilo displayed artifacts from San Nicolas, San Miguel, and San Clemente islands. Channel Island reptiles, including endemic and introduced species and those that live on the Channel Islands and the mainland, were displayed by Nefti, Mary, Hayden, and Lyn. These species included the Island Fence Lizard, Island Night Lizard, the Southern Pacific Rattlesnake, and the American Bullfrog. Chief Librarian Richard Hulser also participated in the scheduled tours and showed publications relevant to the Channel Islands. “Honorary R & C staff member” Tim Bovard (Museum Taxidermist, Education & Exhibits) exhibited preserved endemic and introduced species from the Channel Islands including a feral cat, wild pig, elephant seal, and the Santa Cruz Island Scrub Jay and discussed the devastating effects introduced species have had on the native species.

Herpetology

RASCals outreach lectures and workshops.

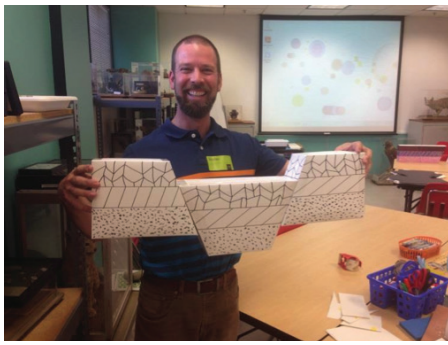
On Wednesday March 5th, Greg visited the White Point Nature Center in Coastal San Pedro where he met with staff from White Point and the Palos Verdes Peninsula Land Conservancy. The meeting focused on the invasive Italian Wall Lizards that are now found just a few blocks east of White Point Nature Center and on using citizen science to document the distribution of native and non-native lizards in the area. The staff are very concerned about the potential impacts of the invasive lizard if it reaches White Point and the Palos Verdes Land Conservancy open space areas. They are also very excited about using citizen science as one way to help document local biodiversity and to help understand the changing fine-scale distribution of the Italian Wall Lizard.

On Wednesday February 26th, Greg gave a short lecture about the RASCals project to Dr. Chris Tracy's herpetology class from CSU Fullerton. Dr. Tracy and his students are now contributing observations to RASCals. The class then received a behind-the-scenes tour of the herpetology collection before spending time in the Nature Lab and other exhibits.

On Sunday March 9th, Dr. Kris Kaiser visited the museum with her urban ecology class from Pomona College. Greg gave a short lecture about the use of citizen science for urban ecology studies, obviously with a focus on the RASCals project. The students then toured the herpetology collection and the Nature Lab.

Reptiles and Amphibians of Southern California (RASCals) update.

The RASCals project has now been active for 8 months and has received approximately 1800 submissions! While there have been many recent observations of interest, one especially exciting observation was sent in by Glen Yoshida of Torrance. Glen's photographs from last spring led to documenting the first population of Indo-Pacific Geckos in the state of California. This species is from southeast Asia and the south Pacific. On March 6, 2014, Glen submitted a new photograph of a recent hatchling Indo-Pacific Gecko. We already knew this was an established population with eggs and recent hatchlings seen last summer. But what makes this photo so interesting is that it demonstrates that Indo-Pacific Gecko eggs were laid and successfully developed over the course of our unusually mild winter. This hatchling had to have developed from an egg laid in January! While this is bad news in that it speaks to the success of this invasive species in our area, it also is a really exciting success story for citizen science. How else would we learn about these geckos living around people's houses if not for citizen scientists like Glen taking photographs of them?



History

On January 7th, Dr. William Estrada gave a guided tour of the *Becoming Los Angeles* exhibit for the Jonathan Club. Founded in 1895, the Jonathan Club is among the oldest and most prestigious social clubs in Southern California. Two weeks later on January 21st, Dr. Estrada provided another guided tour for the club, this time focusing on the origins of Los Angeles with a tour of Mission San Gabriel.

On January 27th, Dr. Jane Pisano and Dr. Estrada hosted a lunch, PowerPoint presentation and tour of the *Becoming Los Angeles* exhibit for members of Las Angelitas del Pueblo. Founded in 1966, Las Angelitas del Pueblo is the volunteer docent organization of El Pueblo de Los Angeles Historical Monument, the birthplace of Los Angeles.

Marine Sections

From February 24 through March 13, R&C hosted a series of school visits in collaboration with the SeaMobile. This was a new program, and it may be repeated and developed further to pair with the school visits from the SeaMobile truck. Children from nearby King Middle School and 93rd St. Elementary School who had previously been visited by the SeaMobile came to NHM to get a behind the scenes look at researchers and learn about marine collections. Four groups visited each section with prepared questions that our scientists answered and illustrated with specimens. Visits were hosted by Jody Martin (Crustacea), Leslie Harris (Polychaetes), Lindsey Groves (Malacology), Kimball Garrett (Ornithology), Howell Thomas (Vertebrate Paleontology), Regina Wetzer (MBC), Mary Stecheson (Invertebrate Paleontology), and Chris Thacker (Ichthyology). Conversation was lively and reports are that the students and teachers greatly enjoyed the visits and thought they were a terrific complement to the SeaMobile outreach program.

Mineral Sciences

Workshop:
"Earth Science Make and Take"

On February 22nd, Alyssa Morgan worked with Molly Porter and Kristen Metzger of E & E on a workshop for science teachers called "Earth Science Make and Take." The class of about 30 teachers focused on using 3-D models and visual aids to teach children important concepts in geology and seismology. Teachers made foam and cardboard blocks to show how faulting and folding shape the landscape of Southern California. They also learned how to use a Slinky to model seismic waves and how to use Oreo cookies to demonstrate the movement of Earth's tectonic plates.

Volunteers and Research Associates

Dinosaur Institute

Dr. Martin Sander is a vertebrate paleontologist trained in Germany, the US, and Switzerland. It is the Triassic ichthyosaurs of Nevada that link him to the Dinosaur Institute and the museum. These fossils provide exciting insights into ecosystem recovery after the end-Permian mass extinction. What makes fossil vertebrates so fascinating for him is that bone preserves its microstructure in addition to its shape. Studying fossil bone thin sections under a polarizing microscope, he reconstructs the life history of a dinosaur, finding out amazing things such as the fact that there were island dwarf dinosaurs, similar to the island dwarf mammoths of the Channel Islands of California. This led him to ask: How did those long-necked giants, the sauropod dinosaurs, evolve their enormous size? By working with a team of scientists with wide-ranging backgrounds, he came to realize that a special combination of primitive characters and evolutionary innovations made sauropod gigantism possible.

Dr. Lars Schmitz is an evolutionary and functional morphologist interested in explaining the dynamics of macroevolution. His main study system is the vertebrate eye, and through careful analyses he attempts to find out what role the ecology and behavior of an organism has in influencing the evolution of its eye shape. Previous work in this area has shown that the form of bony ossicles in the eye and the size of the eye socket itself are related to the daily activity rhythm of an animal, allowing for inferences of night-activity in dinosaurs and other Mesozoic archosaurs. Dinosaurs aside, his favorite groups of fossil vertebrates are marine reptiles, in particular ichthyosaurs, whose big eyes actually inspired his work on vision. Dr. Schmitz teaches courses on introductory biology, vertebrate anatomy, and sensory evolution at the W.M. Keck Science Department of Claremont McKenna, Pitzer, and Scripps Colleges, as an Assistant Professor.

Distinguished Visitors

History

On February 14 the History Department hosted Dr. Margaret Salazar-Porzio, Curator at the Smithsonian's National Museum of American History. Dr. Salazar-Porzio reviewed collections in the Seaver Center with Betty Uyeda and John Cahoon and toured the *Becoming Los Angeles* exhibit with Dr. William Estrada as part of her research for the Smithsonian's forthcoming exhibit, *Our American Journey: Many Voices, One Nation*, which is scheduled to open in 2016. Dr. Estrada has been an ongoing consultant on this exhibit, which will examine the five hundred year journey of how many distinct peoples and cultures met, mingled, and created the culture of the United States.

On March 12 the History Department, along with Dr. Kirk Fitzhugh and Vicky Brown, hosted Dr. Ned Kaufman of Columbia University and author of *Place, Race, and Story: Essays in the Past and Future of Historic Preservation* (2009). After breakfast with the History staff and a tour of the *Becoming Los Angeles* exhibit, Dr. Kaufman gave a noontime talk for the museum entitled *Extraordinary Prizes in Ordinary Places: How Preserving Everyday Things Can Save People and the Planet.*

Herpetology

Visiting Researchers
Herpetology has hosted numerous visiting researchers in the past three months, many of whom were specifically focused on vipers. Bill Hayes, Ricky Escobar, and Carl Persons from Loma Linda University visited for two days to study the reproductive biology of Southern Pacific Rattlesnakes. Mike Cardwell from Sacramento State University also visited to determine gender and age of rattlesnakes that had bitten people. Mike examined a large series of rattlesnakes that were deposited by Sean Bush, MD; Dr. Bush had received the snakes from patients who brought them to the hospital after being bitten. The last viper researcher is Sean Harrington, a PhD student in the joint doctoral program at San Diego State and UC Riverside, who visited three times to examine morphological diversification in vipers.

Other recent visits include a class from Saddleback College led by Marcelo Pires. Dr. Pires is interested in placental development in African skinks. In 2011, the skink *Trachylepis ivensi* was discovered to be the first reptile known to have a true placenta. Dr. Pires is interested in examining closely related species to understand the evolution of placentation in this unique group. He and his students will continue visiting the collection and examining specimens over the next few months.

Lastly, PhD student Jennifer Singleton has visited three times in the past few months. She is taking advantage of our large and geographically widespread collections of Desert Iguanas to examine color pattern evolution and development.

Rancho La Brea

Bryant University, Rhode Island, researchers Drs. Qin Leng and Hong Yang visited the Page Museum in December to collect samples of fossil plant and insect material for preservation analysis. Their work examines molecular preservation and molecular exchange between fossils and sedimentary matrix. This includes the preservation of DNA and other biomolecules.

Page Museum Research Associate Dr. Sue Ware visited the collections for a week in February to examine some new pathologic canid specimens from Project 23 and to continue her work on the large pathology collection, specifically the dire wolves, *Canis dirus*, and the gray wolves *Canis lupus*. She is interested in morphometric comparisons and paleopathological investigations into the cause of death, injuries, and diseases of the Canidae. Her work is part of a larger study with the Wolf Recovery Project in Yellowstone National Park. Dr. Ware completed her dissertation titled "Disease, skeletal injury and trauma as possible behavior modifiers in the fossil dire wolf *Canis dirus* (Canidae Carnivora) from Rancho La Brea California" in 2006.

Associate Professor Dr. Wendy Binder of Loyola Marymount University here in Los Angeles has been working in the collections at the Page Museum for the past few months collecting landmark data from *Smilodon fatalis* skulls. This is part of a larger study on "Modularity and evolutionary change through time in the carnivores at Rancho La Brea". Co-investigators include Anjali Goswami from University College London, Julie Meachen from Des Moines University, Iowa, and F. Robin O'Keefe from Marshall University, West Virginia. This is the fourth study in a series of ongoing projects involving *Canis dirus* and *Smilodon fatalis* at Rancho La Brea examining morphological shape change through time. This manuscript will be part of an invited submission to Proceedings of the National Academy of Sciences (PNAS) for a special issue on modularity, led by investigator Anjali Goswami.

Victoria J. Orphan, Professor of Geobiology in the Division of Geological and Planetary Sciences at Caltech, visited Rancho La Brea with one of her classes on the 1st of February. They sampled several fresh asphalt and ground water localities around Hancock Park to examine for microbial life and DNA. Their visit included a half day workshop taught by R&C staff on comparative osteology and microfossil sorting. They also toured the current Project 23 excavations.

Vertebrate Paleontology

Dr. Bruce J. Welton visited our collections on 6 March 2014 with his wife Cassandra. Dr. Welton is a former Curator of Vertebrate Paleontology at our museum and has become active in publishing on the fossil sharks in our collections. During his most recent visit he focused on the group of fossil basking sharks including *Cetorhinus*. Our Senior Paleontological Preparator, Howell W. Thomas, is currently preparing a very important specimen of fossil basking shark that will be described by Dr. Welton. A new species of megamouth shark from our Vertebrate Paleontology collections was recently published 4 March 2014 in the *Journal of Vertebrate Paleontology* by Kenshu Shimada, Bruce J. Welton and Douglas J. Long. The LACM holotype species name *Megachasma appelgatei* is in honor of the late Dr. Shelton P. Applegate, who was a former Curator of Vertebrate Paleontology at our museum.

Malacology

Malacology visitors included: Doug Eernisse (CSU Fullerton) to examine Recent and fossil limpets, Daniel Geiger (SBMNH) to research fissurellid type specimens, Ángel Valdés (Cal Poly Pomona) to use the SEM & examine nudibranchs, Xiaoshen Yin (USC) to conduct oyster photography, James Holmquist (UCLA) to examine pre nuclear-age marsh mollusks for radiocarbon dating, Pat Krug and Jan Vendetti (CSULA) to examine saccoglossans and confer with Ángel Valdés, Allison Fitts-Penniman (UCLA) to make tissue samples of phestillid nudibranchs for sequencing, and Daniel Muhs (USGS, Denver) to examine Pleistocene fossil invertebrates from the Channel Islands and compare with Recent specimens.

Dinosaur Institute

The Honorable Newt Gingrich spent an afternoon in late October visiting the Dinosaur Institute. Assistant Collections Manager Maureen Walsh gave Newt the grand tour, which included the Dinosaur Hall, Dino Lab, and Mesozoic Collections. During his visit Newt was graciously approached by many museum guests for photographs and to offer recognition for his service. He is very interested in avian evolution, particularly those groups that were able to transition the Cretaceous–Paleogene extinction event, contributing to the survival of the class Aves. Following his visit he posted on his Twitter account: “Had fun touring @ NHMLA with my @googleglass.”

Recent Publications

Chiappe, L.M., Zhao, B., O'Connor, J.K., Gao,C., Wang, X., Habib, M., Marugan-Lobon, J., Meng, Q., and Cheng, X. 2014. A new specimen of the Early Cretaceous bird *Hongshanornis longicresta*: insights into the aerodynamics and diet of a basal ornithuromorph. *PeerJ* 2:e234. http://dx.doi.org/10.7717/peerj.234

Cooper, M.A., Abdu, Y.A., Hawthorne, F.C., and **Kampf, A.R.** 2013. The crystal structure of comancheite, $Hg^{2+}_{55}N^{3-}_{24}(OH,NH_2)_4(Cl,Br)_{34}$, and crystal-chemical and spectroscopic discrimination of N^{3-} and O^{2-} anions in Hg_{2+} compounds. *Mineralogical Magazine* 77: 3217-3237.

Gaillou, E., and Rossman, G. R. 2014. Color in natural diamonds: The beauty of defects. *Rocks & Minerals*, Vol. 89, No 1: 66-75.

Gaillou, E., and Lyckberg, P. 2014. Das neue "MIM" Museum in Beirut: eine Vision wurde Wirklichkeit. *Mineralien Welt*, Vol. 25, No. 1: 22-33.

Kampf, A.R., Sciberras, M.J., Leverett, P., Williams, P.A., Malcherek, T., Schlüter, J., Welch, M. D., Dini, M. and Molina Donoso, A.A. 2013. Paratacamite-(Mg), $Cu_3(Mg,Cu)Cl_2(OH)_6$: a new substituted basic copper chloride mineral from Camarones, Chile. *Mineralogical Magazine* 77: 3113-3124.

Kampf, A.R., Nash, B.P., Dini, M. and Molina Donoso, A.A. 2013. Magnesiokoritnigite, $Mg(AsO_3OH)\cdot H_2O$, from the Torrecillas mine, Iquique Province, Chile: the Mg-analogue of koritnigite. *Mineralogical Magazine* 77: 3081-3092.

Mills, S.J., **Kampf, A.R.**, McDonald, A.M., Bindi, L., Christy, A.G., Kolitsch, U., and Favreau, G. 2013. The crystal structure of parnauite: a copper arsenate–sulphate with translational disorder of structural rods. *European Journal of Mineralogy* 24: 693-704.

Rakovan J., **Gaillou E.**, Post J.E., Jaszczak J.A., and Betts J. H. 2014 Optically sector-zoned (star) diamonds from Zimbabwe. *Rocks & Minerals*, Vol. 89, No 2: 173-178.

Rumsey, M.S., Welch, M.D., **Kampf, A.R.**, and Spratt, J. 2013. Diegogattaite, $Na_2CaCu_2Si_8O_{20}\cdot H_2O$: a new nanoporous copper sheet-silicate from Wessels Mine, Kalahari Manganese Fields, Republic of South Africa. *Mineralogical Magazine* 77: 3155-3162.

Shimada, K., **B. J. Welton**, and D. J. Long. 2014. A new fossil megamouth shark (Lamniformes, Megachasmidae) from the Oligocene-Miocene of the western United States. Journal of Vertebrate *Paleontology* 34: 281-290.
The first description of a new fossil megamouth shark at the species level is published by Dr. Bruce J. Welton, who is a former Curator of Vertebrate Paleontology and a current Research Associate of Vertebrate Paleontology. The new holotype, named after former Curator of Vertebrate Paleontology Dr. Shelton P. Applegate, is housed in our Vertebrate Paleontology collections.

Welch, M.D., Mitchell, R.H., **Kampf, A.R.**, Chakhmouradian, A.R., Smith, D., and Carter, M. 2014. Crystal structure and topological affinities of magbasite, $KBaFe^{3+}Mg_7Si_8O_{22}(OH)_2F_6$: a trellis structure related to amphibole and carpholite. *Mineralogical Magazine* 78: 29-45.

Staff Departures and New Staff

Rancho La Brea

The Rancho La Brea Department wishes Michelle Tabencki the best of luck in her new endeavors. Michelle has been on staff as part of a hardworking and dedicated excavation team since we started Project 23 in 2008. Prior to becoming a staff member, Michelle was a volunteer both in the Fishbowl Lab and in Pit 91. She also joined us on many field expeditions to El Golfo de Santa Clara in Mexico to prospect for Pleistocene fossils. Over the past few years she also studied for her Masters at Cal State LA. She completed her dissertation in forensics in December 2013 and has moved on to pursue her career. Michelle has shared her osteology knowledge and enthusiasm for paleontology with the volunteers she supervised, with public park tours, VIP tours and the numerous media events centered on the tar pits excavations. She also brought her interests to the classroom when she participated in local school career days.

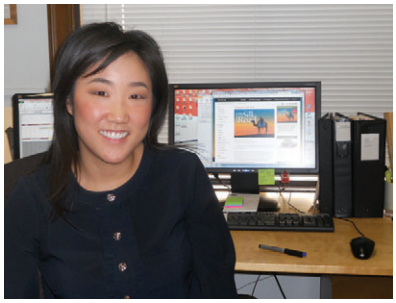
We would like to welcome our new Preparator Sean Campbell who started work as an excavator at Project 23 in early February. Sean is a graduate from San Diego State University and a former volunteer in the RLB department.

Malacology

Jim McLean has been appointed a Research Associate in Malacology after 37 years as Curator and 12 years as Curator emeritus. He will still be around the section, though not as often, completing various research projects.

Conservation

The Conservation Section is pleased to introduce the new Assistant Conservator, Elizabeth Drolet. Elizabeth is a graduate of the UCLA / Getty Conservation Program, where she received her master's degree in 2012. Most recently, she worked in the conservation lab at the UCLA Fowler Museum, where she documented and treated hundreds of cultural artifacts for their *Fowler at Fifty* anniversary exhibition. On her second day of work at here NHM, Elizabeth assisted with the treatment of Anthropology's 17-foot long Pre-Columbian feathered serpent fresco at our North Grand warehouse to prepare it for loan to LACMA, clearly demonstrating that she is ready for anything!



Registrar's Office

The Registrar's Office welcomes Associate Registrar Leanne Lee, who began work with us in February. No stranger to NHM, Leanne comes to us from the exhibit fabrication firm Cinnabar, where she coordinated the graphic production for our Los Angeles exhibit. Among her diverse museum experiences, Leanne worked in the Drawings Curatorial Department at the Getty Museum for five years. Leanne received her Bachelor of Arts degree in studio art at Carleton College, a small liberal arts college in Northfield, Minnesota.

The Research & Collections Newsletter is issued quarterly by the
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Editor: Dr. Joel W. Martin, Curator of Crustacea and
Chief of the Division of Invertebrate Studies.

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