



## Escape the UCMP!



Mock-up of STEM Escape room at the California Academy of Sciences. Image by Helina Chin.

*"Your family enters the moss-covered trailer to find a deserted field station filled with specimens and lab equipment. A branching diagram is scrawled on a chalkboard. Anatomical drawings hang over a microscope on the lab bench. You and your daughter use a magnifying glass to peer at a set of skulls next to a notepad with a series of symbols and scribbles. Your son opens a laptop, finding a video message from Dr. Leticia Lopez. She needs your help identifying the treatment that will save her life and recover her research from the evildoer behind it all. You begin searching for clues together and puzzling over mysterious objects found in a drawer. Now the game is afoot!"*

Thus begins the **University of California Museum of Paleontology** and University of Kansas Natural History Museum's planned odyssey into the world of escape games, funded by the National Institute of Health's (NIH) Science Education Partnership Award (SEPA). This 5-year, \$1.1 million dollar grant will support development of innovative educational projects that share health and biomedical science, train the next generation of scientists, and enhance the diversity of the scientific workforce.

Escape rooms are a popular new immersive game format in which a team is "locked" in a room and challenged to solve a series of narrative-embedded puzzles encoded in the room's artifacts in order to "escape" within a set period of time.

Over the next 5 years, the UCMP, University of Kansas, California Academy of Sciences, and Berkeley Public Library will develop and evaluate the escape room model. The game will pop up in museums

and libraries across the country, engaging diverse families in solving a biomedical mystery. Players will use critical-thinking and collaboration to solve puzzles using basic concepts regarding evolutionary relationships. The wheelchair-accessible room will serve English- and Spanish-speaking family groups with two to six active participants at a time, age eight and up.

Ready to grab the kids and escape? Unfortunately, you'll have to wait. STEM Escape won't be touring until 2022. Planned stops include:

- California Academy of Sciences
- Berkeley Public Library
- Stanislaus County Library
- Arizona Science Center
- New Mexico Museum of Natural History and Science
- University of Iowa Museum of Natural History
- University of Kansas Natural History Museum
- Yale Peabody Museum of Natural History
- Estherville Public Library
- Independence Public Library
- Artesia Public Library 📍



Educators conquer an escape room: Satish Pillai (UCSF), Alex Gurn (Rockman et al), Anna Thanukos, Lisa White, Amy Miller (Cal Academy of Sciences), and Sarah Dentan (Stanislaus County Library). Photo courtesy of Clockwise Escape SF.

STEM Escape is supported by the National Institute of General Medical Sciences of the National Institutes of Health under SEPA Award Number R25GM132971. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.





## Director's Letter

I am delighted to report that UCMP is firing on all cylinders. Our undergraduate and graduate students have been presenting at national and international meetings, including at SVP, GSA, and NAPC. Our collections staff, **Dr. Pat Holroyd**, **Dr. Diane Erwin**, and new comer, **Dr. Ashley Dineen** have been writing and administering grants, publishing, training students, and hosting visitors. The care of the collections, in all its dimensions, is in wonderful hands.

Our education and outreach team, led by **Dr. Lisa White**, currently has six grants, including a large NIH grant with **Dr. Anna Thanukos**, principal editor of the *Understanding Evolution*

(UE) and *Understanding Science* (US) websites, to develop an evolution-based escape room for public museums and libraries. The team has also received an IMLS grant to modernize and enhance UE and US online. Lisa was also recognized at the recent SVP meeting in Australia for her NSF-funded collaborative grant on broadening participation in field-based sciences. **Dr. Jessica Bean** has been spear-heading our *Understanding Global Change* initiative, where she has added a rich, and well received, pedagogical component to a template modeled on UE and US. She is collaborating with Howard Hughes Medical Institute to further the pedagogical work.

But our most exciting news is that **Dr. Jack Tseng** and **Dr. Juan Liu** have accepted Berkeley's offers of tenure-track and adjunct Assistant Professorships, respectively, in vertebrate paleontology. Both are currently Assistant Professors in the School of Medicine and Biomedical Sciences, University of Buffalo. They begin in July 2020, and will be a most welcome boost to our program, including our field program, as we finally replace the irreplaceable **Tony**

## Who is UCMP?

**Director:** Charles Marshall

**Assistant Director:** Lisa White  
Mark Goodwin\*

### Curators:

Anthony Barnosky*	Dave Lindberg*
Roy Caldwell*	Jere Lipps*
William Clemens*	Cindy Looy
Ivo Duijnste**	Charles Marshall
Seth Finnegan	Kevin Padian
Carole Hickman*	Tim White
Leslea Hlusko	James Valentine*

### Curatorial Associates:

Walter Alvarez	Lynn Ingram
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### Admin. Assistant:

Chris Mejia

### Museum Scientists:

Ashley Dineen	Patricia Holroyd
Diane Erwin	

### Education & Public Outreach:

Jessica Bean	Helina Chin
Trish Roque	Anna Thanukos

Edited by Lisa White

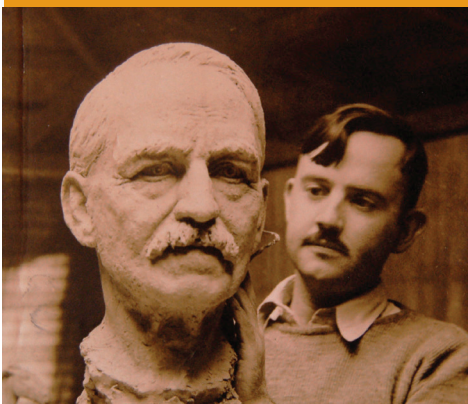
Layout & graphics by Helina Chin

\*Emeritus/a, \*\*Adjunct

**Barnosky.** We will give you a fuller overview of Jack and Juan in our next Newsletter. And so, as I approach the end of my 10th year in UCMP, I want to offer a special thanks to the UCMP staff, a group of outstanding women, for the crucial roles they play in making UCMP as effective as it is.

**Charles Marshall**

## New Pages in UCMP History



William Gordon Huff sculpting educator Phillip M. Fisher, photo courtesy of Dave Smith.

On April 5, after almost eight years of work, UCMP staff alum **Dave Smith** "went live" with his online "not-quite-a-biography" of California sculptor **William Gordon Huff**. What began as mere curiosity about the man turned into something of an obsession. His

multi-page feature explores Huff's connections to UCMP but is primarily a thorough examination of all Huff's artwork, from simple sketches and small medallions to historical plaques and monumental sculptures. Huff's history can be found at <https://ucmp.berkeley.edu/about/history/huff/index.php>.

Dave has also written about UCMP field expeditions from the early 1900s, notably **Annie Alexander's** 1901 expedition to Fossil Lake, Oregon, to collect Quaternary mammal and bird fossils and the 1905 Saurian Expedition to the West Humboldt Mountains of Nevada to collect Triassic ichthyosaur fossils. Links to the Saurian Expeditions from 1901, 1902, 1903 and 1905 from the UCMP History can be found here: <https://ucmp.berkeley.edu/about-ucmp/history-of-ucmp>. 🌐



Huff's *Smilodon californicus* one of his original five reconstructions. Photo courtesy of Dave Smith.



## World Premiere of the Bearded Lady Project Feature Film

The Bearded Lady Project—the brainchild of paleobotanist Ellen Currano and filmmaker Lexi Jamieson Marsh—aims to challenge tenacious gender biases in the sciences, specifically paleontology. In 2014, Ellen and Lexi teamed up with fine arts photographer Kelsey Vance and director of photography, Draper White, and began travelling around the country and abroad to photograph, film and interview female paleontologists and paleoscientists in the field and their labs to highlight the work they do and share their journey of how they got to where they are now.



Dr. Cindy Looy holding her mustache and beard used in her portrait while hosting the event. Photo by Jaemin Lee

The project consists of two parts: (1) a feature film celebrating the unsung achievements of the many paleontologists, who happen to be women, revealing the obstacles they faced because of their gender; and (2) a photography exhibit that—with a positive dose of wit—made short work of the burly bearded male stereotype that has dominated the professional landscape of field-going scientists.

A total of 15 of the Bearded Ladies are UC Berkeley paleontologists and are featured in nine of the 39 black-and-white portraits in the touring exhibit. The beautiful photographs—many of them taken out at their field sites in deserts, mountains, badlands and mudflats—were all shot on vintage large-format film cameras with the intention of taking the viewer back to the



Bearded Ladies at UCMP. **Back row from left:** Jessica Bean, Emily Orzechowski, Lucy Chang, Renske Kirchholtes, Emily Lindsey, Erica Clites, Whitney Reiner, Jenna Judge, Caitlin Boas, Diane Erwin, Carole Hickman, Alison Stegner. **Middle row from left:** Winnie Hsiung, Camila Souto, Rosemary Romero, Dori Contreras, Tesla Monson, Tripti Bhattacharya, Natalia Villavicencio, Sara ElShafie. **Front row from left:** Liz Ferrer, Cindy Looy, Lisa White, Savannah Blake. Photo courtesy of Ivo Duijnste, 2015.

early days of paleontological field expeditions more than a century ago. Most historic photographs of Earth scientists often depict rough-looking, old, long-bearded white men, wielding pick axes and shovels, loading fossils on mule trains; a stereotype that persists today and that the Bearded Lady Project aims to address and change.

On Thursday August 22, 2019, **Cindy Looy** had the honor of hosting the world premiere of the full-length Bearded Lady Project feature film at the Lawrence Hall of Science. More than 100 attendees saw the film that prominently featured our very own **Carole Hickman** and **Lisa White**. It was impressive to see how moved many in the audience were by all the deeply personal stories shared by paleontologists and paleoscientists

in the film. The documentary was followed by a lively panel discussion, led by **Leslea Hlusko** with the Bearded Lady Project founders Ellen Currano and Lexi Jameison Marsh, UCMP senior museum scientists **Pat Holroyd** and **Ashley Dineen**, and UC Davis paleoscientist, geochemist, and past President of the Geological Society of America Dr. Isabel Montañez as well as **Lisa White** and **Carole Hickman** from UCMP.

Through this unique photo series and film, the Bearded Lady Project has provided a platform and strong sense of community for women in the paleosciences, allowing them to share their stories, many of which are very relatable and were shared for the first time. Learn more about the Bearded Lady Project at: <https://thebeardedladyproject.com>. 🐉



**Left to right:** Dr. Leslea Hlusko moderating, Dr. Ellen Currano (founder), Lexi Jamieson Marsh (founder and filmmaker), Dr. Pat Holroyd, Dr. Ashley Dineen, Dr. Isabel Montañez (UC Davis). Photo by Helina Chin.



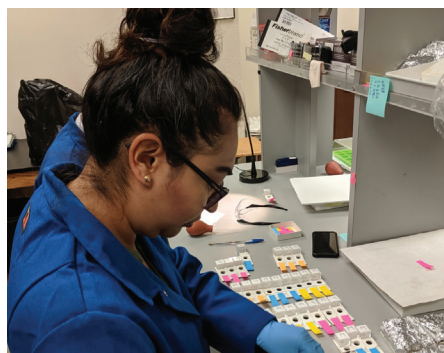
## Collections Updates



Detail of tiny wasp embedded in epoxy resin taken with the Keyence VHX7000 digital microscope. Photo courtesy of Diane Erwin.

### Saving the UCMP Mexican amber collection: IMLS to the rescue

Brittle and fractured from their decades-long improper storage in cardboard slide holders, the UCMP amber collection from Chiapas, Mexico, comprised largely of insect inclusions collected by Frans Blom, is being rehabilitated thanks to a \$47,496 grant from the Institute of Museum and Library Services (MA-30-18-0083-18) to **Diane Erwin** (PI). This grant has provided support for one graduate and three Berkeley undergraduate students, giving them the opportunity to work hands-on with natural history specimens and contribute first-hand to the conservation of this historically important collection. During Spring 2019 **Jaemin Lee** (grad student), **Cameron Deptula** and **Matthew Yu** (Team Resin) assisted Erwin with



Ana Lillia Hernandez Damian organizing and labeling new slides. Photo by Diane Erwin.

the embedding of 660 specimens in clear epoxy resin, while **Viviana Gonzalez** worked with the amber archives, entering archive document metadata and uploading over 960 PDFs to UC Berkeley's DocuBase system. These documents will be made web-accessible by linking them with the UCMP Archon Amber Files online finding aid. We were also excited to host **Ana Lilia Hernández Damián**, a student from the National Autonomous University of Mexico (UNAM), as a new "Team Resin" member for two weeks in September to participate in the project.

### Calaveras Project funding extended

Thanks to **Mark Goodwin**, a one-year \$120,000 extension was approved to supplement the recently completed two-year agreement between the UCMP and the San Francisco Public Utilities Commission (SFPUC). The additional funding will support undergraduate and graduate student research positions in UCMP to complete preparation and curation of an assortment of fossils, including mollusks, shark teeth, whales, and marine mammal bones collected from the Late Miocene Temblor Formation during construction of the new Calaveras Dam in southern Alameda County. 🦕

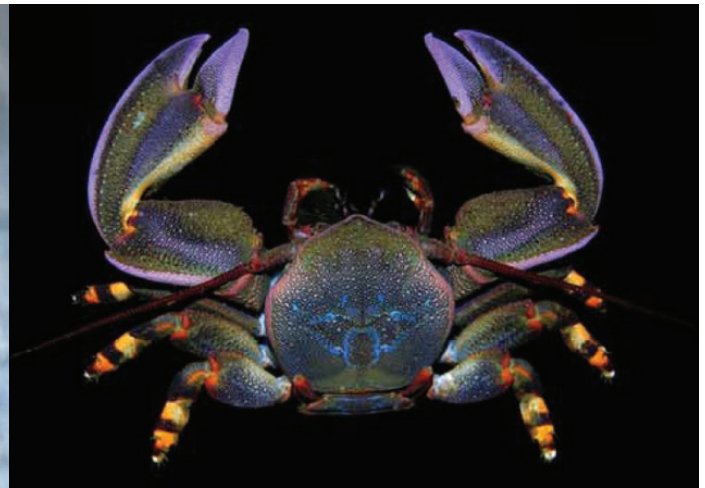
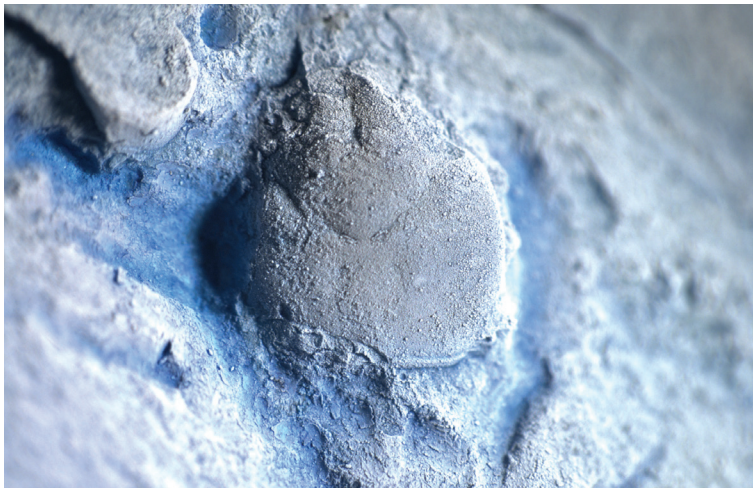
## Staff Updates

**Mark Goodwin** returned to the Upper Cretaceous of Montana, stopping first at the farm of Dan and Lila Redding to review some microvertebrate localities in the Judith River Formation with UCMP alum **Greg Wilson** (U. of Washington) and his graduate student Luke Weaver. They also investigated new Judith River sites near Fresno Lake outside of Havre, Montana. Mark and the crew headed to Jordon where he met up with David Evans (Royal Ontario Museum). Mark, Dave, and Greg visited many Hell Creek Formation sites over the next week. Highlights were relocating quarries from 1902 of Barnum Brown's, including where the first *Triceratops* skull from Montana was collected and the holotype locality of *Tyrannosaurus rex*. A couple of pachycephalosaur skull localities were tracked down and mapped into stratigraphic position relative to the K-Pg boundary. Mark next headed to Ekalaka, Montana, where he was an invited speaker at the Carter County Museum's annual Dino ShinDig. Mark returned to Rudyard where he met up with UCMP Director **Charles Marshall** and Friend of UCMP's Kevin Hartz and his daughter Maeve for a tour of the Judith River badlands on Redding Farms for a couple days. Finds included numerous dinosaur bones, tyrannosaur teeth, a partial pachy dome, and amber!



Friend of the Museum Kevin Hartz and his daughter with Charles Marshall in Judith River Badlands. Photo credit Mark Goodwin.





**Left:** Fossilized carapace of *Vibrissalana*, a porcelain crab, Late Jurassic. Photo courtesy of Cristina Robins and Adiël Klompmaker. **Right:** Photo of a modern porcelain crab. Photo by Arthur Anker.

The UCMP congratulates **Cristina Robins** (formerly a Senior Museum Scientist managing the Calaveras project) and **Adiël Klompmaker** (formerly a postdoctoral scholar in the Finnegan Lab) on their new positions at the Alabama Museum of Natural History. Recent highlights of their joint research on often-understudied squat lobsters were published in a September 2019 issue of the *Zoological Journal of the Linnean Society* (<https://news.berkeley.edu/2019/09/18/coral-reefs-and-squat-lobsters-flourished-150-million-years-ago>). In the article they provide a snapshot of thriving reef communities in Central Europe 150 million years ago when lobsters and crabs flourished in coral reef environments were at their peak of diversity. 🌿

## Student Updates

Congratulations to the UCMP graduate students who finished in the spring and summer of 2019! We wish them all well in their new positions: **Dori Contreras** (Looy Lab, now Curator of Paleobotany at Perot Museum); **Elizabeth Niespolo** (Renne Lab, now postdoctoral scholar at Cal Tech and Assistant Prof. at Princeton in 2020); **Emily Orzechowski** (Finnegan Lab, now postdoctoral scholar, Department of Integrative Biology); **Ashley Poust** (Marshall Lab, now postdoctoral scholar at the San Diego Natural History Museum); **Camilla Souto** (Marshall Lab, now

lecturer in the Department of Integrative Biology and Smithsonian Deep Time Fellow, January 2020).

This fall the UCMP also welcomed three new graduate students: **Reilly Hayes** and **Jen Wagner** in the Looy Lab and **Tara Lepore** in the Hlusko Lab.

## Student highlights and recognition

**Larry Taylor** continues to direct the UCMP Paleo program for community college students serving hundreds of students each semester. Larry presented UCMP Paleo at NAPC in Riverside, and he and **Lisa White** submitted an NSF REU proposal with the California Academy of Sciences to expand the program. Larry's research, tracking whale migration through fossil barnacles, was published in the *Proceedings of the National Academy of Sciences* (<https://www.pnas.org/content/116/15/7377/tab-article-info>)



**From top to bottom:** Tanner Frank processing diatomite in Fernley, NV, photo by Helina Chin; Larry Taylor presenting UCMP Paleo at NAPC, photo by Lisa White; Tesla Monson at her new gig at Western Washington University, photo courtesy of Tesla Monson.

**Tanner Frank** of the Marshall lab made five trips to collect fossil fish from a diatomite quarry near Fernley, Nevada. With the guidance of **Dr. Michael Bell** and several volunteers, friends and staff of the UCMP, Tanner brought back nearly 200 fossils of sticklebacks and killifish in order to study the rate and tempo of an ecological replacement event that occurred in the Miocene between these two kinds of fish. The fine layers of diatomite at the site allows for a high temporal resolution of a

....continued on Students page 7



## Publications 2019 (partial list)

Xie, K. T., G. Wang, A. C. Thompson, J. I. Wucherpfennig, T. E. Reimchen, A. D. C. MacColl, D. Schluter, **M. A. Bell**, K. M. Vasquez, and D. M. Kingsley. 2019. DNA fragility in the parallel evolution of pelvic reduction in stickleback fish. *Science* 363:81-84.

**Clemens, W.A.** 2019. *Puercolestes* and *Betonnia* (Cimolestidae, Mammalia) from the early Paleocene (Puercan 3 Interval Zone) of northeastern Montana, U.S.A. *PaleoBios*, 36, page 5

Eberle, J.J., **W.A. Clemens**, P.J. McCarthy, A.R. Fiorillo, G.M. Erickson, and P.S. Druckenmiller. 2019. Northernmost record of the Metatheria: a new Late Cretaceous pediomyid from the North Slope of Alaska. *Journal of Systematic Palaeontology*

Powell, II, C.L., **E.C. Clites**, **A.W. Poust**. 2019. Miocene marine macropaleontology of the fourth bore Caldecott Tunnel excavation, Berkeley Hills, Oakland, California, USA. *PaleoBios*, 36, page 5

**Contreras, D.L.**, I. Escapa, R. Irabarren, R. Cuneo. 2019. Reconstructing the early evolution of the Cupressaceae: a whole plant description of a new *Austrohamia* species from the Cañadon Asfalto Formation (early Jurassic), Argentina. *International Journal of Plant Sciences* 180(8): 834–868.

Roopnarine, P.D., and **A.A. Dineen**. 2018. Coral reefs in crisis: The reliability of deep time food web reconstructions as analogs for the present, in Tyler, C. and C. Schneider (eds.), *Marine Conservation Paleobiology*. New York, NY: Springer, p. 105-141.

**Dineen, A.A.**, P.D. Roopnarine, and M.F. Fraiser. 2019. Ecological continuity and transformation after the Permo-Triassic mass extinction in northeastern Panthalassa. *Biology Letters*. v.15 (3), p. 20180902.

Wosik, M., **M. B. Goodwin**, and D. C. Evans. 2018. A nestling-sized skeleton of *Edmontosaurus* (Ornithischia, Hadrosauridae) from the Hell Creek Formation of northeastern Montana, U.S.A., with an analysis of ontogenetic limb allometry. *Journal of Vertebrate Paleontology*. 37(6). e1398168. DOI: 10.1080/02724634.2017.1398168.

Boatman, E.M., **M.B. Goodwin**, H.Y. N. Holman, S. Fakra, W. Zheng, R. Gronsky, and M.H. Schweitzer. 2019. Mechanism of soft tissue and protein preservation in *Tyrannosaurus rex*. *Scientific Reports* 9:15678. doi:10.1038/s41598-019-51680-19, 15678

Cullen, T.M., F.J. Longstaffe, U.G. Wortmann, **M.B. Goodwin**, L. Huang, and D.C. Evans. 2019. Stable isotope characterization of a coastal floodplain forest community: a case study for isotopic reconstruction of Mesozoic vertebrate assemblages. *Royal Society Open Science*. 6: 181210.

**Goodwin, M.B., R.B. Irmis, G.P. Wilson**, D.G. Demar, Jr., K. Melstrom, C. Rasmussen, B. Atnafu, T. Alemu, M. Alemayehu, S.G. Chernet. 2019. The first confirmed sauropod dinosaur from Ethiopia discovered in the Upper Jurassic Mugher Mudstone. *Journal of African Earth Sciences*, 159 (2019) 103571.

Wosik, M., **M.B. Goodwin**, and D.C. Evans. 2019. Nestling-sized hadrosaurine cranial material from the Hell Creek Formation of northeastern Montana, USA, with an analysis of cranial ontogeny in *Edmontosaurus annectens*. *PaleoBios*, 36.

**Hayes, R. F.**, S. Y. Smith, M. Montellano-Ballesteros, G. Álvarez-Reyes, R. Hernández-Rivera, and D. E. Fastovsky. 2018. Cornalean affinities, phylogenetic significance, and biogeographic implications of *Operculifructus infrutescences* from the Late Cretaceous (Campanian) of Mexico. *American Journal of Botany* 105(11): 1-18.

López-Torres, S., M. T. Silcox, and **P.A. Holroyd**. 2018. New omomyoid (Euprimates, Mammalia) from the late Uintan of southern California and the question of the extinction of Paromomyidae (Plesiadapiformes, Primates). *Palaeontologia Electronica* 21.3.37A: 1-8.

Eberle, J. J., **J. H. Hutchison**, K. Kennedy, W. Koenigswald, R. D. E. MacPhee and G. Zazula. 2019. The first Tertiary fossils of mammals, turtles, and fish from Canada's Yukon. *American Museum Novitates* 3943: 1-28.

**Klompaker, A.A.**, M. Hyžný, R.W. Portell, C. Jauvion, S. Charbonnier, S.S. Fussell, A.T. Klier, R. Tejera, and S.L. Jakobsen. 2019. Muscles and muscle scars in fossil malacostracan crustaceans. *Earth-Science Reviews* 194: 306–326.

**Klompaker, A.A.**, P.H. Kelley, D. Chattopadhyay, J.C. Clements, J.W. Huntley, and M. Kowalewski. 2019. Predation in the marine fossil record: studies, data, recognition, environmental factors, and behavior. *Earth-Science Reviews* 194: 472–520

**Lim, J.Y., Marshall, C.R.**, Zimmer, E.A. and Wagner, W.L., 2019. Multiple colonizations of the Pacific by *Peperomia* (Piperaceae): Complex patterns of long-distance dispersal and parallel radiations on the Hawaiian Islands. *Journal of Biogeography*. 12 pages. DOI: 10.1111/jbi.13717

Ghiselin, M., and **J.H. Lipps**. 2019. The Sea Slug *Phanerophthalmus luteus* (Gastropoda: Opisthobranchia) and its habitat and ecology at the marine Jellyfish Lake (Ongeim'ITketau), Palau, Western Pacific Ocean. *Proceedings of the California Academy of Sciences*. Series 4, Volume 65, No. 8, pp. 181-194, 8 figs., 2 tables.

Getz, W. M., **C. R. Marshall**, C. J. Carlson, L. Giuggioli, S. J. Ryan, S. S. Románach, C. Boettiger, S. D. Chamberlain, L. Larsen, P. D'Odorico, D. O'Sullivan. 2018. Making ecological models adequate. *Ecology*

*Letters* 21: 153-166.

**Marshall, C.R., S. Finnegan, E. C. Clites, P. A. Holroyd**, N. Bonuso, C. Cortez, E. Davis, G. P. Dietl, P. S. Druckenmiller, R. C. Eng, C. Garcia, K. Estes-Smargiassi, A. Hendy, K. A. Hollis, H. Little, E. A. Nesbitt, P. Roopnarine, L. Skibinski, J. Vendetti, & **L. D. White**. 2018. Quantifying the dark data in museum fossil collections as palaeontology undergoes a second digital revolution. *Biology Letters* 14: 20180431.

Vermeij, G.J., R. K. Grosberg, **C. R. Marshall**, R. Motani. 2018. The sea as deathtrap: comment on a paper by Miller and Wiens. *Ecology Letters* doi: 10.1111/ele.12886.

**Marshall, C.R.** 2019. Using the Fossil Record to Evaluate Timetree Timescales. *Frontiers in Genetics*, 10:1049, p. 1-20

**Padian, K.** 2018. Review of Origins of Darwin's Evolution, by J. David Archibald. *Syst. Biol.* 67(4):741-742.

**Poust, A.W.** 2018. Review of Patrons of Paleontology, written by Jane P. Davidson. *Fossil News*. 21(1): 12-13.

**Poust, A.W.** and R.W. Boessenecker. 2018. Expanding the geographic and geochronologic range of early pinnipeds: New specimens of *Enaliarctos* from Northern California and Oregon. *Acta Palaeontologica Polonica*, 63 (1): 25-40.

**Poust, A.W.** 2018. Review of Topics in Paleobiology: Cetacean Paleobiology, written by Marx F.G., O. Lambert, and M.D. Uhen. *Palaeontologia Electronica* Vol. 21, Issue 1; 1R:3p.

**Robins, C.M., Klompaker, A.A.**, Extreme diversity and parasitism of Late Jurassic squat lobsters (Decapoda: Galatheoidea) and the oldest records of porcellanids and galatheids, *Zoological Journal of the Linnean Society*, zlz067, https://doi.org/10.1093/zoolinlean/zz067

Martins, L. and **C. Souto**. 2018. Taxonomic remarks on *Havelockia* and *Thyone* (Holothuroidea: Dendrochiroidea), with descriptions of two new species from the Brazilian coast. *Journal of the Marine Biological Association of the United Kingdom*.

**Souto, C.**, R. Mooi, L. Martins, C. Menegola, and **C.R. Marshall**. 2019. Homoplasy and extinction: the phylogeny of the cassidulid echinoids (Echinodermata). *Zoological Journal of the Linnean Society*. 187(3):622-660.

**Zimmet, J.B.**, Lockwood, R., Andrus, C.F.T, and Herbert, G.S. 2019. Sclerochronological basis for growth band counting: A reliable technique for life-span determination of *Crassostrea virginica* from the mid-Atlantic United States. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 516:54-63.





Tanner Frank, Kat Magoullick, Sara ElShafie, Lisa White, Pat Holroyd, Ash Poust, Eric Holt and Julia Anderson at the Society of Vertebrate Paleontology Conference in Brisbane, Australia. Photo courtesy of Lisa White.

...continued from Students page 5

phenomena called lake invasion. The composition of diatoms may also allow him to study associated environmental factors with the help of **Lisa White**.

**Sara ElShafie** received an Outstanding GSI Award in Spring 2019 for teaching Evolution and Herpetology.

Graduate students **Mackenzie Kirchner-Smith** and **Ixchel González-Ramirez** spent a month working in the Paleobotanical Collections of the National Museum of Natural History (NMNH) in DC as part of the NSF-sponsored Pteridophyte Collection Consortium project (PCC). They digitized more than 700 pteridophyte

specimens from the Paleobotanical Figure and Type Collection. The digitization process included taking photographs of the specimens and building databases that include their taxonomy, locality, geochronology, and all the references that depict and/or describe them. These fossils cover a wide taxonomic and temporal scale and were collected across 28 different states.

**Tesla Monson**, who completed her PhD in 2017 as a member of the UCMP, is excited to start a tenure track position as Assistant Professor of Anthropology at Western Washington University in her home state of Washington. At Western, Tesla will continue her teaching and research on the evolution of mammalian

## Friends of UCMP

We would like to welcome the following new or renewing members to our Friends of the UCMP!

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skeletal and dental variation, life history, and reproductive ecology with a focus on primates. 🐒



## Support our Education and Outreach Fund and become Friend of UCMP!

To donate and become a Friend of UCMP, please return the form below with a check made out to **UC Berkeley Foundation**, or visit <https://give.berkeley.edu/browse/?u=273>.

Currently, we are looking to grow our endowment for our education and outreach programs to help ensure the long-term future of this core component of UCMP's mission:

\_\_\_\_\_ **UCMP Education and Outreach Fund (FW4101000)**

Donations to the Barnosky Endowment will help support graduate student research, while donations to the Friends Fund will help support our shorter-term programming.

\_\_\_\_\_ **Anthony Barnosky Graduate Student Support Endowment (FW8044000)**

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## Fall Edition 2019



Fossilized stickleback fish collected by Tanner Frank in Fernley, NV. Photo by Tanner Frank.

2019 has been an active year for UCMP students, staff, and alumni who were well represented at the North American Paleontological Convention in Riverside CA, the Geological Society of America conference in Phoenix, AZ, and the Society of Vertebrate Paleontology meeting in Brisbane, Australia.

UCMP continues to actively participate in the iDigBio and Advancing Digitization in Biological Collections (ADBC) summits highlighting results of our NSF-funded EPICC Thematic Collections Networks (TCN) and Fossil Insect Partners to Existing Networks.

## Calendar of Events

**March 7, 2020**

### Short Course

Save the date of March 7th for the UCMP Short Course on *Pleistocene megafauna: fame and fate*. Leading researchers will share current thinking on the evolution and extinction of large mammals over the past 100,000 years.

**April 18, 2020**

### Cal Day

Save the date for Cal Day 2020 when UC Berkeley and the Museum of Paleontology welcome the Berkeley community to come see our latest research and fossil collections! See you there!

Keep up with us on our website,  
Facebook, Instagram & Twitter!



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