

Research & Collections News

The Occasional Newsletter of the Research and Collections Staff
Natural History Museum of Los Angeles County

re•search (rī-sūrċh', rē'sūrċh) *n.* **1.** Scholarly or scientific investigation or inquiry. See synonyms at **inquiry**. **2.** Close, careful study. **3.** When performed on collections, the *raison d'être* of all great natural history museums.

March, 2006

(covering the months of January and February, 2006)

Collection News

Invertebrate Paleontology

Mary Stecheson and her team of USC work-study students added catalog records for 102,950 specimens in 3,021 lots, bringing the totals for the Invertebrate Paleontology database to 1,150,000 specimens in 37,400 lots. In addition, the information pertaining to 175 localities of the recently acquired California State University Northridge invertebrate fossil collection has been entered in the database.

Dinosaur Institute

We have a large collection of vertebrate fossils from the Fruita Paleontological Area in western Colorado. Fruita is an extremely interesting site because it contains small vertebrates in a fine-grained matrix - but it is from the Morrison Formation (Late Jurassic in age – about 145 million years old) that produces the giant sauropod dinosaurs such as *Apatosaurus*



[= *Brontosaurus*]. It is the same age and from the same geologic rock Formation as the Dinosaur National Monument. Among the fossils from this deposit is a skeleton of a primitive mammal called *Fruitafossor windscheffeli*, named by Z.-X. Luo & J. Wible in

2005 (A Late Jurassic Digging Mammal and Early Mammalian Diversification. *Science*, 308(5718):103-107) based on a specimen from our collections - LACM 5573 / 150948 (shown above). Using a high resolution CT scanner capture, still and moving images of this specimen are now on-line at the University of Texas at Austin DigiMorph digital library. Browse over to the site at:

http://www.digimorph.org/specimens/Fruitafossor_windscheffeli/

and see the specimen for yourself.

Field Work

Entomology

For most of the month of February, Entomology Curator Brian Brown was conducting fieldwork in New Zealand. Funded by his National Science Foundation grant to study the relationships of phorid fly genera worldwide, Brown was attempting to collect fresh material of the highly endemic New Zealand fauna.



Misty native New Zealand forest



Hugh Oliver collecting phorids amongst New Zealand "flax."

He collected nearly all the endemic genera (including some previously undescribed genera), discovered a couple of new ones, and even recollected some genera not seen since they were described in 1939. His work there was a collaboration with New Zealand biologist Hugh Oliver, who hosted Brown's trip, and consisted of travel to three North Island localities: Raglan, on the west coast, Turangi in the mountainous south-center, and Sandy Bay on the eastern Coromandel Peninsula. Specimens collected will be sequenced by Brown's collaborator, Dr. Paul Smith of CSU Bakersfield, and will be added to their rapidly growing library of DNA from world phorid genera.

Echinoderms

Curator Gordon Hendler (at right) spent part of February at a tiny island on the edge of the Belize Barrier Reef, to carry out research on Belizean brittle stars. Gordon worked under the auspices of the Caribbean Coral Reef Ecology (CCRE) program, with funds provided by the Smithsonian Institution. Although he has visited there repeatedly since the early 1980s, fresh discoveries and new questions have surfaced during every trip to Belize. His principal activity last month was to study the numerous invertebrates that populate tropical algae – plants that are becoming increasingly abundant as reef corals around the world are killed by disease, environmental degradation, and global warming. Samples brought back to the museum will answer basic questions: about changes of echinoderm populations over the past 2 decades, about preferences of various echinoderms for different species of algae and different



water depths, and about the peculiar reproduction of “miniature” brittle star species. Specimens will be shared with Deana Welker (a “postgraduate” museum REU scholar), with new REU students this coming summer, with biomaterials scientists at the University of Bergen, Norway, and with other collaborators with the museum’s echinoderm laboratory. On the island, Gordon worked with graduate students Dusty Kemp (University of Georgia) and Randi Rotjan (Tufts University), who provided the photographs shown here.



At many localities, reef slopes that used to be coral-covered are now overgrown by algae. Calcareous algae, like this *Halimeda* species (left), have “leaves” about the size of corn flakes. Innumerable dead leaves shed by the plants produce most of the white sand on tropical shores. The living green leaves provide shelter for multitudes of small animals including echinoderms, crustaceans, mollusks, and worms.



Picking invertebrates out of just a small sample of algae develops hand-eye coordination skills and provides endless hours of enjoyment (left).

Even a football-sized clump of algae can harbor surprisingly large numbers of echinoderms, predominantly brittle stars (at right). Many are the young of species that grow to a large adult size; others are miniature species that can fit on a dime, with room to spare.



Dinosaur Institute

In December of 2005, Luis Chiappe and Doug Goodreau joined the staff of the Carmen Funes Museum (Plaza Huincul, Argentina) for 2 weeks of paleontological prospecting in the Portezuelo beds of northwestern Patagonia, a series of 85-million-year-old rocks that contain dinosaur fossils. The National Geographic Society-funded expedition found the remains of sauropods (long-necked dinosaurs) and small meat-eating theropod dinosaurs. The expedition also discovered some very interesting sites containing microvertebrates and conducted detailed sedimentological studies of these beds. The latter will allow fine-tuning of the age of these rocks and fossils.

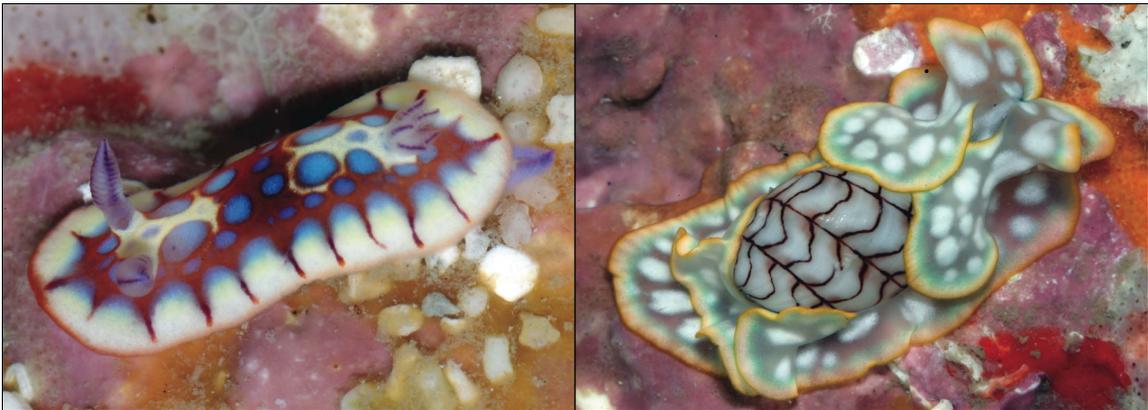
Also in Dinosaur Institute field/travel news, in January, Luis Chiappe and Graduate-Student-in-Residence Jingmai O'Connor spent 2 weeks in China studying a diversity of 120-million-year-old birds. They studied collections at museums in Beijing, Dalian, and Tianjin. As part of their collaboration with Chinese scientists, they also established a research agreement with the Dalian Natural History Museum. Staff from this museum is expected to visit Los Angeles and bring specimens to be prepared and studied at the Dinosaur Institute. One of these specimens is a very primitive bird that may provide clues for better understanding the evolution of the avian hand, an issue that has been surrounded by a decade-long controversy.

Vertebrate Paleontology

Larry Barnes spent a couple of very profitable weeks in January studying and comparing fossil dolphins from the east and west coasts of North America with colleagues David Bohaska at the Smithsonian, Stephen Godfrey at the Calvert Marine Museum in Maryland, and Alton Dooley of the Virginia Museum of Natural History. One of the benefits of this study was preparation of submittals for a symposium about the origin of the modern groups of whales and dolphins which will be held at the October meeting of the Society of Vertebrate Paleontology, and a planned November symposium at the Calvert Marine Museum that will focus on fossils of the Chesapeake Bay region.

Malacology

Ángel Valdés traveled to Costa Rica in early January to collect nudibranchs along the Caribbean coast. The trip involved diving and snorkeling in Puerto Viejo, Puerto Vargas and Manzanillo and was conducted in collaboration with colleagues at the Universidad de Costa Rica. The trip yielded nearly 60 species, at least 3 of them new to science.



Chromodoris clenchi (left) and *Micromelo undatus* (right), two colorful seaslugs from Costa Rica.

Meetings, Workshops, and Presentations

Rancho La Brea

John Harris and Chris Shaw attended the Foundation for Quaternary Paleontology in Venezuela's workshop at the Jackson School of Geosciences in Austin, Texas, on February 5-7 entitled *Developing a World-Class Paleontological Resource from the Pleistocene Tar Seeps (Menes) of Venezuela*. John gave a presentation on the history and scientific significance of Rancho La Brea and Chris co-chaired the committee for Project Logistics.

Crustacea and Echinoderms

Jody Martin and Gordon Hendler attended the Census of Marine Life meeting for the "C-Reefs" project, Hawaii Institute of Marine Biology, Coconut Island, Hawaii, in late February. Martin and Hendler are members of a group of scientists who have been invited to participate in a survey of one of the Northwestern Hawaiian Islands in the fall of this year.

Polychaetes

Leslie Harris (Collection Manager, Polychaetes) spent a week in Monterrey, Mexico, at the Universidad Autonoma de Nuevo Leon during February. She was an invited participant in the conference "Invertebrados Marinos del Caribe." During the Conference she presented a talk on biodiversity of Caribbean invertebrates, which was based on our own Guana Island Biodiversity Survey as well as her other Caribbean field work. Funding for her visit was provided by UANL.

Malacology

Malacology staff members Lindsey Groves, Jim McLean, and Ángel Valdés attended the 10th annual gathering of SCUM (Southern California Unified Malacologists) at the Santa Barbara Museum of Natural History on January 21st. SCUM is an informal group that meets on an annual basis to facilitate contact and keep members informed of research activities and opportunities. Malacology volunteer Bob Sinclair, graduate students Alvin Alejandrino and Carla Stout, and Malacology Research Associates Lance Gilbertson and Phil Liff-Grieff also attended the SCUM proceedings.

Vertebrate Paleontology

The National Science Museum of Japan (in Tokyo) on 2-3 March sponsored an international workshop dealing with fossil paleoparadoxiids. Plaeoparadoxiids are a family of the Desmostylia, which are extinct, odd-looking, hippo-like four-legged herbivorous marine mammals. Our Museum has one of the world's best and largest collections of paleoparadoxiids, and three of the nine presentations in Tokyo were based on our specimens. Among the US contributors to the Workshop were our Museum's Lawrence Barnes, Howell Thomas, and Samuel McLeod, with Howell traveling to Tokyo with Dr. Daryl Domning, of Howard University in Washington, D.C., to make our presentations and to demonstrate replicas of our specimens.

Anthropology

Scott Van Keuren (Curator of North American Archaeology) presented an invited paper at the 10th *Southwest Symposium: Acts of History: Ritual, Landscape, and Historical Archaeology in the U.S. Southwest and Northern Mexico*. The January conference was sponsored by New Mexico State University in Las Cruces; this biennial event is the preeminent gathering of archaeologists working in the North American Southwest. In a paper titled "Rethinking Cult Movements in the Late Pre-Hispanic Southwest," Dr. Van

Keuren questioned popular notions about the integrative role of religious belief systems in late Pueblo prehistory. He also reported new data from recent excavations of a fourteenth century Ancestral Pueblo (or “Anasazi”) village in east-central Arizona.

External Funding

Ornithology

Ornithology Collections Manager Kimball Garrett and Research Associate Kathy Molina have been funded by the Sonny Bono Salton Sea National Wildlife Refuge to sample shorebirds and other waterbirds at the Salton Sea to help establish levels of West Nile Virus seroprevalence in that area. A large sample of birds are being netted, bled, banded and released; for several target species specimens are being collected and prepared at the Natural History Museum both for this virus seroprevalence study and an ancillary study on the diets of birds feeding along the Salton Sea shoreline. The study will run through the year 2006.

History

The History Department has received a second grant from the John Randolph Haynes and Dora Haynes Foundation (this one for \$45,337) to support our ongoing program to preserve, digitize, and catalogue thousands of photographic images in the collections of the Seaver Center for Western History Research in order to broaden the recognition, accessibility, and use of visual material documenting the history of Los Angeles and the Southern California region. The database resulting from this project will be migrated to the website of the USC Archival Research Center, where it will be included with the photographic collections of several other institutions in the area and made available for researchers.

Public Outreach

R & C Prepares for Opening of “The Mysterious Bog People”

Several Research and Collections staff are busy with preparations for our newest exhibition, *The Mysterious Bog People*. This international touring exhibition was organized by a consortium of Canadian and European museums and is the first of its kind to showcase rare artifacts and human bodies from the bogs of northwestern Europe. It makes its West Coast debut at the Museum on March 26.

Dr. Scott Van Keuren (Archaeology) is the Museum’s receiving curator for the exhibition and has worked closely with Public Programming and other departments to develop content and programming; he has introduced the exhibit content to Museum staff and affiliates in numerous recent lectures. Both Dr. Van Keuren and Chris Coleman (Collections Manager, Anthropology) have selected materials from the Museum’s collections to enhance the Bog Science Investigation (BSI) component. Susan Oshima (Acting Chief

Registrar) and Darienne Hetherman (Acting Associate Registrar) are intensely involved in the unloading, temporary storage, and unpacking of exhibition materials. They along with Tania Collas (Conservator) have spent many hours in our temporary gallery for the installation.

All of Research & Collections!

In preparation for some of the exhibitry planned for the 1913 Building Project, nearly all R & C staff were involved extensively with the visit of Marion Lyonnais from January 5-11. Ms. Lyonnais, representing François Confino's exhibit design team, was escorted through every major R & C collection area.

Rancho La Brea/Mammalogy

John Harris and Jim Dines assisted Public Programs in updating the labels for the African and North American Mammal Halls. Additional information pertaining to the dioramas and the represented species is being added to the relevant Permanent Exhibit pages on the museum's web site as and when other commitments permit.

Invertebrate Paleontology

Curatorial Assistant Mary Stecheson spoke at the January meeting of the Southern California Paleontological Society, reviewing her work on fossil gastropods from Late Cretaceous rocks in the Simi Hills. Mary also gave a demonstration of the Invertebrate Paleontology database and discussed Pleistocene type specimens cataloged in the database.

Distinguished Visitors

Marine Biodiversity Processing Center

Dr. Kyung-Jin Lee, a researcher from Hannam University's Natural History Museum in Korea, is in Los Angeles to study the systematics and ecology of California sponges. He has joined Dr. Chung-Ja Sim, a research associate here at the Museum, in her work with the Allan Hancock Foundation (AHF) Porifera Collection. They are comparing the systematics of intertidal Korean sponges with California sponges. Their expertise will greatly benefit the museum's sponge collection, which is well-curated although only a small percent is actually identified. They have collected specimens from the coastlines of San Diego, San Francisco, and Los Angeles. Some of these specimens will be donated to the museum's AHF Porifera Collection. Dr. Sim will be returning to Korea in May 2006 and Dr. Lee may return to Korea in June, pending further funding.

Malacology

Mollusk researcher Dr. Kautstuv Roy and post-doc Marcello Rivadeneira (UC San Diego) visited the Malacology collection for research purposes in early February.

Vertebrate Paleontology

Dr. Daryl P. Domning of Howard University in Washington, D.C., spent several days studying the Museum's rare desmostylians in the Department of Vertebrate Paleontology. Desmostylians are an odd-looking, extinct group of hippo-like, four-legged, herbivorous marine mammals. Our Museum has one of the world's best and largest collections of such beasts, and they continue to attract visiting scientists and student researchers. Dr.

Domning's visit included a trip to Orange County's Fossil Facility, where Dr. John Cooper was very helpful in accommodating comparisons between our specimens and theirs.

Ornithology

Dr. Zbigniew Bochenski of the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Cracow, Poland, has returned for a two month visit to work with Ken Campbell on the fossil owls of Rancho La Brea. Dr. Bochenski was a recent Postdoctoral Research Fellow at the Museum for a year, during which time he and Dr. Campbell completed an extensive analysis of the extinct California Turkey found at Rancho La Brea. The current project is dedicated to the identification of all of the owl bones in the collections at the Page Museum, detailed osteological descriptions of the extinct species of owls, and an analysis of the overall strigiform (owl) contribution to the paleoavifauna of Rancho La Brea. Dr. Bochenski's visit is being funded by private contributions for research.

Student Mentoring and Research

Polychaetes

As part of her visit to UANL (see above under Meetings), Leslie Harris (Collection Manager, Polychaetes) worked with three graduate students in the laboratory of Dr. Angel de Leon-Gonzalez. Julio Homero Landin, Maria Elena Garcia Garza, and Geraldo Gongora-Garza are studying the polychaete families Goniadidae, Capitellidae, and Syllidae. Geraldo has already visited this museum as part of his research and is planning future visits, while Homero & Maria Elena (seen with Leslie at right) will be visiting in late March and again in May.



Marine Biodiversity Processing Center

We can't do without them! Work study students supported by collections and research grants in the MBPC and Crustacea are a wonderful asset and contribute to collection, grant, and research activities. They sort, file, scan, pdf, curate, organize, process, database, image capture, edit, proofread, and even provide invaluable research assistance in preparing grant proposals. In fact, Jennifer McCard (pictured at right), along with Gordon Hendler and Jody Martin, attended the Census of Marine Life "C-Reefs" Workshop in Hawaii on sampling techniques and methodology. Armed with up-to-date information, Jennifer is preparing a grant proposal to NOAA/NURC (National Undersea Research Center) to quantify the effectiveness of artificial settlement devices to measure coral reef diversity.



We thank this academic year's (2005/2006) cohort of outstanding helpers: Jennifer McCard, Jennifer Zieba, Celia Carter, Jessica Wedemeyer, Christian Perrodin, Jocelyn Vivar, and Chris Le. Learn a bit more about the interests and goals of these talented young museum contributors by visiting:

<http://isopods.nhm.org/people/> or

<http://collections.nhm.org/staff.html>

Recent Publications

Chiappe, L. M., Jackson, F. D., Coria, R. A., and Dingus, L., Nesting titanosaurids from Auca Mahuevo and adjacent sites (Late Cretaceous; Patagonia, Argentina): Understanding sauropod reproductive behavior and embryonic development. *In* Jeff Wilson and Kristi Curry-Rogers, *Sauropod Paleobiology*, University of California Press.

Collin, R. Díaz, M. C., Norenburg, J., Rocha, R. M., Sánchez, J. A., Shulze, A., Schwartz, M. & **Valdés, A.** 2005. Photographic identification guide to some common marine invertebrates of Bocas del Toro, Panama. *Caribbean Journal of Science*, 41: 638-707.

Filkorn, H. F. 2006. Mesozoic corals of Mexico, p. 47-59. *In* F. J. Vega, T. G. Nyborg, M. C. Perrilliat, M. Montellano Ballesteros, S. R. S. Cevallos Ferriz, and S. A. Quiroz Barroso, eds., *Studies on Mexican Paleontology*. Springer, The Netherlands.

Fitzhugh, K. 2006. The abduction of phylogenetic hypotheses. *Zootaxa* 1145: 1-110.

Harris, J. M. , M. G. Leakey, and F. H. Brown. 2006. A brief history of research at Koobi Fora, northern Kenya. *Ethnohistory*, 53 (1): 35-69.

Harris, J. M. 2006. [Review of] Evolution of Fossil Ecosystems by Paul Selden and John Nudds. *Quarterly Review of Biology*, 80 (4): 470.

Jefferson, G.T., Deméré, T.A., Rugh, N.S., & **Groves, L.T.** 2006. Systematic list of fossil invertebrates from Anza-Borrego Desert State Park and the Salton Trough Region, San Diego, Imperial, and Riverside counties. *In: Jefferson, G.T. & Lindsay, L (eds.), Fossil Treasures of the Anza-Borrego Desert*, Table 2, p. 356-360.

A comprehensive list of the fossil invertebrates known from the Miocene/Pliocene Imperial Group.

McLean, J.H. 2006. Hypothesis for the recognition of *Nucella analoga* (Forbes, 1852) in the northeastern Pacific. *The Festivus* 38(2):17-21, figs. 1-11.

Based on differences in shell morphology and habitat, a hypothesis for the recognition of the southern California species Nucella analoga as distinct from the northerly species N. canaliculata is presented.

Morrison, K., Dyke, G. J., and L. M. **Chiappe**. Cretaceous fossil birds from Hornby Island (British Columbia). *Canadian Journal of Earth Sciences* 42: 2097-2101.

Muhs, D.R., Simmons, K.R., Kennedy, G.L., Ludwig, K.R., & **Groves, L.T.** 2006. A cool eastern Pacific Ocean at the close of the last interglacial complex. *Quaternary Science Reviews* 25:235-262, figs. 1-14.

An analysis of Pleistocene mollusks and the solitary coral Balanophyllia elegans indicate that oceanic paleotemperatures 120,000 BP were similar to that of today but were cooler than today at 80,000 BP. The 80,000 BP date also correlates with a high stand of the ocean (marine isotope stage 5a) late in the last interglacial complex.

Shaw, C. A., and S. M. **Cox**. 2006. The Large Carnivorans: Wolves, Bears, and Big Cats. *In: Fossil Treasures of the Anza-Borrego Desert*, G. T. Jefferson and L. Lindsay, editors, San Diego: Sunbelt Publications, Incorporated, pp. 177-191.

Taylor, J., Laimon, S. & **Valdés, A.** 2005. Is *Doris georgiensis* García et al., 1993 a distinct species of dorid nudibranch? *Polar Biology*, 29: 73-76.

Vega, F. J., V. M. Dávila Alcocer, and H. F. **Filkorn**. 2005. Characterization of cuticle structure in Late Cretaceous and Early Tertiary decapod Crustacea from Mexico. *Bulletin of the Mizunami Fossil Museum*, number 32, p. 37-43, 4 plates.

Wang, X., D. P. Whistler, and G. T. **Takeuchi**. 2005. A new basal skunk *Martinogale* (Carnivora, Mephitinae) from late Miocene Dove Spring Formation, California and origin of New World mephitines. *Journal of Vertebrate Paleontology* 25(4): 936-949.

*In this paper, we describe the earliest, smallest, and most primitive skunk in North America (pictured to the left with a penny to show its size). This specimen, LACM 56230, holotype of *Martinogale faulli* Wang, Whistler, Takeuchi, 2005, is from the Dove Spring Formation, Mojave Desert, Kern County, California. Phylogenetic relationships of skunks among carnivorans have become highly controversial, and our newly described skull and lower jaws promises to shed light on this debate.*



You, H., O'Connor, J., **Chiappe**, L. M., and Ji Q. A new fossil bird from the early Cretaceous of Gansu Province, northeastern China. *Historical Biology* 17: 7-14.

Zhou Z., **Chiappe**, L. M., Zhang F. Anatomy of the Early Cretaceous bird *Eoenantiornis buhleri* (Aves: Enantiornithes) from China. *Canadian Journal of Earth Sciences* 42: 1331-1338.

Staff Departures and New Staff

Malacology

Entomology's illustrator/digital imaging technician, Brian Koehler (ext. 3477), is now also working for the Malacology staff to assist curator emeritus Jim McLean with preparation of plates for his identification manuals of northeast Pacific shelled gastropods. Welcome, Brian!

Dinosaur Institute

The Dinosaur Institute has hired Ms. Stephanie Abramowicz as a part-time scientific illustrator. Stephanie is a senior in the Art Department of the University of Southern California. Welcome aboard, Stephanie!

