

Research & Collections News

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

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

May, 2004

(covering the months of March and April, 2004)

Collection News

Herpetology

Herpetology acquired a collection of approximately 470 New World frogs and lizards from CSU Northridge emeritus Dr. Anthony Gaudin. This collection includes many fine skeletal and cleared and stained preparations, and we hope to be able to rehouse these specimens with supplies from our NSF grant to clean, disinfect, and rehouse Ichthyology and Herpetology skeletal specimens.

Crustacea

The Crustacea collection acquired, as a gift from Roger Clark of the National Marine Fisheries Service, two large specimens of lithodid crabs (below). Although neither species is particularly rare, such large specimens (each about 50 cm, or 20 inches, across) are not often represented in museum collections. Additionally, these two specimens were carefully dried and arranged so that they are suitable for exhibiting. Most of our specimens are preserved wet (in 70% ethyl alcohol), which is the preferred storage medium for their long-term storage and for research purposes.



Paralomis verrilli (Benedict, 1895)



Neolithodes diomedae (Benedict, 1884)

Invertebrate Paleontology

During the past two months, Mary Stecheson and her team have cataloged 1273 lots of Pleistocene mollusks including 20,027 specimens. To date, our collections database includes examples of specimens from 3700 species of fossils. Volunteer Bruce Gillies has started curating and cataloging a large collection donated by Cal. State Northridge. The collection includes fossils from over 1600 localities. It was accessioned into our holdings in 2000, and we hope that Bruce can bring it online during the next year.

The Department of Invertebrate Paleontology also has loaned five fossil cephalopods to the Aquarium of the Pacific in Long Beach. These beautiful fossils will be part of a new exhibit on deep-sea life that contains several living specimens of the chambered nautilus. We sent examples of ammonoids and nautiloids collected from the Cretaceous rocks of Western North America. The new exhibit, called Life in Darkness, is scheduled to open in May.

Malacology

Databasing of the UCLA Recent mollusk collection continued with 1249 additional lots curated by Krista Zala, and with identification and taxonomic verifications provided by Lindsey Groves. Curation of the gastropods, scaphopods, cephalopods, and chitons is now complete, and bivalve databasing is underway. Lindsey also visited Anza Borrego Desert State Park in late March and examined their holdings of late Miocene/early Pliocene mollusks of the Latrania Formation of the Imperial Group for comparison with faunas of Venezuela and Colombia. This formation represents the last incursion of the proto-Gulf of California (with its Caribbean-like fauna) into Southern California.

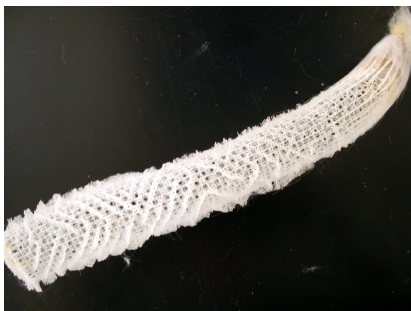
Marine Biodiversity Processing Center

AHF Collection Curation Nears Completion

During a long and dusty day in March last year, most of the Museum General Services, Registrar, and Marine Invertebrate staff hauled the remaining Allan Hancock Foundation (AHF) Collection from a neglected storage room at the University of Southern California to nooks and hallways at the Museum. AHF specimens came from expeditions conducted on the research vessels *Velero III* and *IV* beginning in the 1930s and continuing through the 1960s. The collections are a significant addition to our Museum and increase our



already impressive marine holdings. This final collection to be transferred -- earlier AHF contributions consisted of fishes, mollusks, crustaceans, echinoderms, and polychaete worms -- contained the prized AHF Porifera (a.k.a. sponges) Collection, which consists of type and non-type material, plus myriad mollusk and crustacean specimens. The lower photo at left is of a beautiful "glass sponge" in this collection.



In the last six months the Marine Biodiversity Processing Center (MBPC) has been busy improving the condition of over 5000 lots -- and ridding the East wing basement hallway of numerous pallets in the process! Wet-preserved lots are now temporarily stored on the MBPC's compact shelving in the Polychaetes Collection room, and dry material has been stored at the North Grand Warehouse. This collection includes everything from corals to kidneys. However, the considerable value of this collection lies in the well-represented and mostly identified Porifera specimens as

well as the 800 lots of wet-preserved mollusks. We were able to transfer, upgrade, and house the AHF collection in part due to the support of a National Science Foundation collections support grant. We thank those staff who patiently navigated the spaces this collection recently occupied.

Field Work

Entomology

Brian Brown, Associate Curator of Entomology, recently returned from three weeks of field work in northern Bolivia. Assisted by Elvia Zumbado, Diptera



Technician for the Costa Rica Instituto Nacional de Biodiversidad, Brown was collecting and studying bee-killing flies in the foothills of the Andes (at left). They sampled in three localities: near the resort town of Coroico, on a hilltop in the region of the upper Beni River, and at the remote town of Mapiri. Each spot yielded different types of these unusual parasitic flies, including several species new to science.

Vertebrate Paleontology

With support from the U.S. National Science Foundation, Luis Chiappe has been studying a diversity of primitive birds from China and elsewhere. In January he conducted research on several 115-million-year-old birds from Spain, and in March he collaborated with Chinese colleagues in studying a series of similarly ancient fossils from northeastern China.

Crustacea / Marine Biodiversity Processing Center

Two R & C staff members will travel to East Africa in June to make field collections for the NSF-sponsored isopod systematics project. Regina Wetzer (principal investigator) and Kathy Omura will join colleagues from New Zealand and Denmark to get new specimens from this important collecting location.

(At right: a sphaeromatid isopod on a seashell)



The goal of the project (<http://isopods.nhm.org>) is to revise the systematics of the family Sphaeromatidae, a diverse group within the isopods. Although the project involves working with hundreds of existing museum specimens, modern approaches require new specimens that are amenable to genetic analysis. Therefore a core aspect of the project involves making new collections at world “hot spots” of sphaeromatid diversity. The expedition to the Great Barrier Reef off Australia in 2003 yielded an excellent range of specimens. Target sites for the upcoming trip are Mombasa, Kenya, and the island of Zanzibar off Tanzania. This area of the world is already known to have an unusually high diversity of small marine invertebrates, including sphaeromatid isopods.

Along with Regina Wetzer and Kathy Omura from the Museum, the expedition will be joined in Africa by colleagues from around the world. Niel Bruce (New Zealand), Jørgen

Olesen (Copenhagen), and Guisepppe Messana (Italy) are internationally known experts in isopod systematics. Thanks to the NSF support received for this project, they will be able to rendezvous with the Museum team for the field work in Africa and assist with the post-collection analysis of specimens and data.

Meetings, Workshops, and Presentations

Archaeology

Scott Van Keuren presented a paper with co-author Dr. William Graves (University of Iowa) at the 69th Annual Meetings of the Society of American Archaeology in Montreal. The invited paper, entitled "What Feast? The Social Context of Food Presentation and Consumption in the Late Pre-Hispanic Southwest," was presented in a symposium on the politics of communal food consumption in the archaeological past.

Anthropology

Allyson Lazar (Curatorial Assistant) will present on the topic of volunteers in collections management at the upcoming American Association of Museums annual conference in New Orleans (May 5-10). She will be speaking as part of a panel for a session entitled "The Virtues of Necessity: Inventive and Responsible Volunteer Programs for Collections Care." Also on the panel will be Gallery Interpreter Supervisor and volunteer for Anthropology, Alethea Olsen.

Ichthyology

Christine Thacker and postdoctoral scholar Michael Hardman taught a class in USC's Catalina Island Semester entitled "Molecular approaches to the diversity of life." This class involves intensive lectures on phylogenetic theory and practice, accompanied by labs covering basic molecular phylogenetic methods.

Polychaete Worms

Collection Manager Leslie Harris, along with Dr. Steve Dunbar (Loma Linda University) and colleagues, presented a poster at the recent European Marine Biology Symposium in Portugal. The poster presented the preliminary results of work accomplished during the first year of a multi-year biodiversity survey on the island of Fiji, a project that is modeled after our own Guana Island project in the Caribbean.

History

Steven Karr is teaching a course on California Indian history at UCLA for the spring quarter. In April he presented a paper at the 55th annual California Institute Conference held at the John Muir Center for Environmental Studies, University of the Pacific, titled "Culture and Continuity: Mission Indian Land Tenure and Traditional Orientation after Secularization." On May 3rd he spoke at the Santa Barbara Natural History Museum's Evening Lecture Series on sacred Indian sights in southern California's Trans-Palomar region.

Public Outreach

Ichthyology

Ichthyology recently provided several tours of the Fishes and Herpetology collections and research areas to biology classes from UCLA.

Vertebrates, Vertebrate Paleontology, and Invertebrate Paleontology

During the spring semester of 2004, Drs. John Heyning, Ken Johnson, Xiaoming Wang, and Luis Chiappe co-taught a course on evolutionary biology at USC.

During the last few months, Dr. Luis Chiappe also has been lecturing in Spain, Japan, and Argentina, and conducted research on several primitive birds from China.

Crustacea / Malacology

At the request of collections manager Beth Werling (History), the Crustacea and Malacology Departments gave behind the scenes tours to the Pam Powers family of Fountain Valley. Pam, her father, and her two sons Steve and Jack were given a tour of the labs and collections and were able to ask questions of George Davis, Regina Wetzer, and Todd Haney in Crustacea and Lindsey Groves in Malacology.

On March 6 the Crustacea lab hosted six students from UCLA along with their Professor, Dr. Dave Jacobs, for a tour of the lab and collection room. Questions were fielded by George Davis, Regina Wetzer, and Todd Haney

Distinguished Visitors

Ichthyology/Molecular Lab

Dr. Arthur Anker, a specialist on "alpheid" shrimp (snapping shrimps), visited the molecular lab for a week to assist with identification and sampling of shrimps that are symbiotic with reef gobies. Dr. Anker is at the University of British Columbia. In addition to his work with symbiotic goby specialist (and molecular lab postdoc) Dr. Andrew Thompson, Arthur presented an informal seminar on alpheid diversity and symbiosis.

Vertebrate Paleontology / La Brea



Dr. Joy Ward of the University of Kansas visited the George C. Page Museum on April 27-28 to sample the 14,000 year-old juniper tree from Pit 3 for isotopic analysis. The tree is actually the largest fossil specimen to be recovered from Rancho La Brea and was recently placed on display at the Page Museum. Dr Ward's analysis of other juniper fossils from Rancho La Brea indicates that the

Late Pleistocene climate of southern California was rather drier than we had previously thought. The Pit 3 tree is very well preserved, and we hope that isotopic analysis of its rings will provide some indication of the seasonal climatic variation at the time it was growing. The above image is of the Juniper tree from Pit 3, now on display at the Page Museum.

Recent Publications

Hou L., Chiappe, L. M., Zhang F., and Chuong C-M. 2004. New Early Cretaceous Fossil from China Documents a Novel Trophic Specialization for Mesozoic birds. *Naturwissenschaften* 91: 22-25.

This publication reports on an unusual primitive bird from China with a long snout sporting a few sharp teeth. This discovery -- featured in the L.A. Times -- recognized the presence of a new ecological type among birds of the Cretaceous period.

Cerling, T. E. , B. H. Passey, C. C. Cook, J. R. Ehleringer, J. M. Harris, and M. Dirdha. 2004. An Orphan's Tale: seasonal dietary changes in elephants from Tsavo National Park, Kenya. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 206: 367-376.

The chemical composition of the body reflects the chemical composition of ingested foods. By analyzing the hair from the tails of orphaned elephants from Tsavo National Park, Kenya, we were able to show that these young elephants were browsers for most of the year but ate grass for two weeks after the beginning of each rainy season. Although the large and tall teeth of elephants represent an adaptation for eating grass, isotopic analysis indicates that the diet of modern African elephants contains less than 25% grass.



(At left: John Harris distracting the elephant orphans while the hair on their tails is sampled.)

Grellet-Tinner, G. and L. M. Chiappe. 2004. Dinosaur eggs and nesting: Implications for understanding the origin of birds. In P. J. Currie, E. B. Koppelhus, and M. A. Shugar (eds.), pp. 185-214, *Feathered dragons: studies on the transition from dinosaurs to birds*.

This publication elaborates on the features of the eggs and nesting patterns that support the evolutionary connection between birds and dinosaurs.

Chiappe, L. M., Schmitt, J. G., Jackson, F. D., Garrido, A., Dingus, L., and Grellet-Tinner, G. 2004. Nest structure for sauropods: Sedimentary criteria for recognition of dinosaur nesting traces. *Palaios* 19: 89-95.

This publication describes the first nests of sauropod dinosaurs. It documents that sauropods excavated nests and that they laid their eggs on surface nests.

Chiappe, L. M. 2004. The closest relatives of birds. *Ornitología Neotropical* 15 (Suppl.).

This publication provides a review of the several lines of evidence (bones, eggs, behavior, and feathers) that support the notion that birds are short-tailed, feathered dinosaurs.

Codorniu, L. and L. M. Chiappe. 2004. Juvenile pterosaurs (*Pterodactyloidea: Pterodaustro guinazui*) from the Lower Cretaceous of central Argentina. *Canadian Journal of Earth Science* 41(1): 9-18.

This publication reports on two baby pterosaurs from Argentina and examines the changes in the proportions of the bones between babies and adults.

Coltrain, J. B., J. M. Harris, T. E. Cerling, J. R. Ehleringer, M. Dearing, J. Ward, and J. Allen. 2004. Trophic level relationships among Rancho La Brea fauna and their

implications for the paleoecology of the late Pleistocene based on bone collagen stable carbon and nitrogen isotope chemistry. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 205: 199-219.

The isotopic composition of the bones of different fossil mammal species recovered from the La Brea Tar Pits showed that American lions, sabertoothed cats and dire wolves all fed mainly on bison and camels and were not eating horses or mastodons. Coyotes had a different, more omnivorous, diet than the larger carnivores.

Filkorn, H. F. and J. Pantoja Alor. 2004. A new Early Cretaceous coral (Anthozoa; Scleractinia; Dendrophylliina) and its evolutionary significance. *Journal of Paleontology* 78: 501–512.

Groves, L. New species of Late Cretaceous Cypraeidae (Gastropoda) from California and British Columbia and new records from the Pacific slope. *The Nautilus* 118(1):43-51.

This paper includes descriptions of four new species of fossil cowries (three from California and one from British Columbia). Previously, fossil cowries had not been reported from the Chico Formation (Butte Co., CA), the Ladd Formation (Orange Co., CA), and the Haslam Formation (Vancouver Id., British Columbia).

Martin, J. B., S. A. Day, A. E. Rathburn, M. E. Perez, C. Mahn, and J. Gieskes. 2004. Relationships between the stable isotopic signatures of living and fossil foraminifera in Monterey Bay, California, *Geochemistry, Geophysics, and Geosystems* 5.

Squires, R. S. and L. R. Saul. 2004. The pseudomelaniid gastropod *Paosia* from the marine Cretaceous of the Pacific slope of North America and a review of the age and paleobiogeography of the genus. *Journal of Paleontology* 7: 484–500.

Van Keuren, S. 2004. Feasting and Crafts in the Prehispanic Southwest. In "Identity, Feasting, and the Archaeology of the Greater Southwest," edited by Barbara J. Mills, pp. 192-209. University Press of Colorado, Boulder.

Zimmerman, T. L., and J. W. Martin. 2004. Artificial reef matrix structures (ARMS): an inexpensive and effective method for collecting coral reef-associated invertebrates. *Gulf and Caribbean Research* 16: 59-64.

This short "methods" paper describes one of our collecting devices, a structure that in some ways mimics a coral head and attracts small marine invertebrates. We used these during the Guana Island survey, setting them out in the ocean and then "harvesting" them one year later to collect and photograph some of the animals that colonized them.

Miscellaneous

Invertebrate Studies

In early April, Jody Martin (Crustacea) traveled with Dyan Sublett (Advancement) to Washington, D.C., to promote our preliminary plans to create a West Coast Center for Marine Biodiversity with the lobbying firm Fabiani and Company. In D.C. they met briefly with senators Boxer and Feinstein and worked with the staff of other members of Congress to promote the envisioned Center.

Malacology / Invertebrate Studies

Michelle Schwengel (Malacology Imaging Technician) and her husband Peary Regala participated in and finished the XIX Los Angeles Marathon on March 7th despite the unusually warm weather. Way to go Michelle!

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