

# 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, 2008

(covering the months of March and April, 2008)

## Collection News

### Crustacea

#### CSI in the Museum?

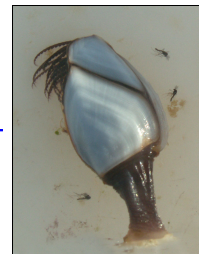
The body was found floating in the ocean about 6 miles off Catalina, with gunshot wounds to the torso. But who was it, where did it come from, and how long had it been out there?

It's a case that could have come straight from an episode of TV's "CSI: Crime Scene Investigation," including a murdered former radio personality, the Los Angeles County Sheriff's Department, guns, money, boats, and barnacles.



Barnacles? Yes, and that's where the Natural History Museum's Crustacea Lab comes in. Small barnacles attached to the shoes of the victim were among the few clues about how long the body had been floating in the ocean. Barnacles are crustaceans, so Dr. Jody Martin and George Davis were consulted by

a representative of the Sheriff's Department. They determined that the barnacles in question were small "goose" barnacles (sometimes called "gooseneck" barnacles) of the genus *Lepas*, a group that is known to attach to floating objects (see photo at right, from the [Glaucus.org](http://Glaucus.org) website). Based on older scientific literature (published growth rates of other species of *Lepas*) and our own museum collections, Martin and Davis determined that the barnacles were probably between 5 and 15



days old. A more precise time frame could not be given because barnacle growth can vary according to temperature, current, available food, and other factors.

It was not much to go on, but apparently that information helped. The time frame fit with the Sheriff's Department's ideas about when the victim and a possible suspect could have been together somewhere on, or near, Catalina Island.

The case has not yet gone to court, and so at this time we are not free to divulge names, dates, or any more specific information at the request of the Los Angeles County Sheriff's Department.

For now, the case can be thought of as yet another reminder of the incredible importance and value of our research collections in ways that could not have been predicted.

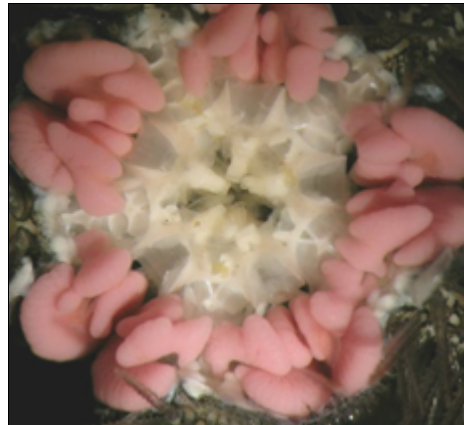
CSI: Crustacean Science Investigation. Attorneys at Claw. Claw and Order.

OK, enough of that. Stay tuned...

## **Field Work**

### ***Echinoderms***

Dr. Gordon Hendler, supported by a fellowship from the Smithsonian Institution, carried out research on the Belize Barrier Reef at the end of February. His study, which was part of a broad scale Caribbean Coral Reef Ecosystems program, dealt with the biology of brittle stars. His time was split between an examination of bioluminescent brittle stars, carried out with colleagues from Tufts and Harvard universities, and several long term projects. SCUBA diving during the day, and working in the laboratory at night, he successfully studied the metamorphosis of one brittle star species, gathered information on growth of several others, performed a series of experiments on regeneration of the brittle star skeleton, and collected two species of unusual parasites that live within the bodies of tiny brittle stars. At least one of the parasites is likely a new species, and since his return Dr. Hendler has started to collaborate on that discovery with a South Korean scientist.



Above right: One of the Belizean brittle stars dissected by Dr. Hendler. This individual, smaller than a dime, is a sexually mature female. The pink structures are ovaries, packed with eggs that are each only 0.1 mm (0.004 inches) in diameter.

### ***Vertebrate Paleontology***

Gary Takeuchi, Mike Williams, and Jack Tseng (Vertebrate Paleontology) led a small group of museum volunteers to Red Rock Canyon State Park for a weekend of fossil prospecting in the late Miocene (12.5 - 8.0 mya) Dove Spring Formation from April 18 –

20 2008. Two important discoveries were made: (1) Several tooth fragments of an extinct beaver were found in the middle part of the section, marking only the second occurrence of this creature in the entire area, and extending the age range of beavers in the Dove Spring Formation. (2) More than a dozen teeth of the very rare extinct false sabertooth cat *Barbourofelis osborni* were discovered by Kameron Sardar, long-time associate of the museum's Red Rock family trips. The new material includes the first upper premolar and sabertooth of the species ever to be found since the original description of the holotype, a lower jaw (which is also from Red Rock Canyon) in 1919. The new false sabertooth cat material is one of the most remarkable and significant discoveries from the Dove Spring Formation in decades! The fossil hunters were also greeted by brilliant blooming wildflowers (see photo below).



Above photos: A, a smiling Kameron Sardar moments after the discovery of the century. At top of the picture, Matilda Berke (left) and Gary Takeuchi (right; Vertebrate Paleontology). B, teeth of the extinct false sabertooth cat *Barbourofelis osborni*. C, Great Basin gopher snake *Pituophis catenifer*. D, beavertail cactus *Opuntia basilaris*.

### **Vertebrate Paleontology again!**

In late February to early March, Xiaoming Wang and Jack Tseng (graduate student in residence) spent two weeks searching for late Cenozoic fossil vertebrates in Juchipila



Basin in the State of Zacatecas, central Mexico, a project funded by a National Geographic Society grant. Because the Juchipila Basin is strategically located along the southern Sierra Madre Occidental, we were particularly keen to discover species that are ancestral to or descendent from South America forms, as the basin sediments are of the right ages (late Miocene to early Pliocene) that may have witnessed faunal exchange between North and South Americas during the initial stage of the formation of the Panamanian land bridge. We were not disappointed. Jack found a nice sloth foot bone, probably the oldest of its kind discovered in Mexico. Other significant finds include teeth of a bone-crushing dog (*Borophagus*), skulls of a new (?) antelope (antilocaprid), and a skull and lots of teeth of various horses (photo). To a large extent, the success of our trip was due to the savvy guidance of our Mexican host, Drs. Oscar Carranza-Castañeda and Jorge Aranda-Gomez, as well as graduate student Jorge “Shakiro” Alfredo Cervantes Corona, from the Centro de Geociencias at Universidad Nacional Autonoma de Mexico.



Above: A nearly complete set of lower teeth of a horse collected by Hilda.

Left: Our field team, from top left to bottom right: Hilda (Oscar’s wife), Oscar, Jack, “Shakiro,” Jorge, Xiaoming.



Above: Composite panoramic photo of El Mixtón exposures, our most fossiliferous locality.

## Meetings, Workshops, and Presentations

### ***Ornithology***

Collections Manager Kimball Garrett co-presented, with Michael C. Long of the Los Angeles County Department of Parks and Recreation, a talk on the status of the Cactus Wren (*Campylorhynchus brunneicapillus*) in Los Angeles and Ventura Counties for the “Southern California Coastal Cactus Wren Symposium” in Irvine on 1 April. The workshop was attended by about 100 biologists, land managers, and agency personnel; it addressed conservation concerns for a species whose coastal slope populations are seriously declining.

### ***Vertebrate Paleontology***

In January, Xiaoming Wang gave an invited presentation on the late Cenozoic geology and paleontology of Tibetan Plateau at the University of California Riverside.

### ***Crustacea***

In March, Dr. Jody Martin and Dean Pentcheff were funded to attend the National Science Foundation-sponsored “Tree of Life” meeting in New Orleans, Louisiana. Dean presented the digital library component of Dr. Martin’s decapod crustacean Tree of Life project in a talk titled *Making systematic literature globally available*. Their literature digitizing project, designed to allow unfettered access to the vast amount of published literature on crabs, lobsters, shrimps and their relatives from anywhere in the world via the web, was proposed as a model for other researchers funded by NSF through the Tree of Life program. To see our project website go to: <http://decapoda.nhm.org>

## External Funding

### ***Vertebrate Paleontology***

In April, graduate student Jack Tseng (Vertebrate Paleontology) was offered a U.S. Fulbright Fellowship to study abroad in China for 10 months. From August 2008 to May 2009, Jack will study fossil hyenas at the Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, Beijing. The University of Southern California (where Jack is a student) has produced an average of five Fulbright student scholars per year since 2001.

Also in April, Jack Tseng received research grants from the Evolving Earth Foundation and the Geological Society of America for his planned fieldwork in central Inner Mongolia in July 2009. Jack is planning to lead a joint crew from the NHM and the Institute of Vertebrate Paleontology and Paleoanthropology (China) to map and excavate two new bone beds from the late Miocene Baogeda Ula Formation. The goal of the project is to better establish the late Miocene large mammal fauna in the region, in order to study local faunal changes during a period of global grassland expansion.

Congratulations on receiving both awards, Jack!

## Public Outreach

### ***Curator's Cupboard "Discoveries" Theme***

On April 12<sup>th</sup>, an enthusiastic, appreciative throng of museum visitors enjoyed a Curator's Cupboard event in the Grand Foyer. Owing to participation from staff in Anthropology, Archives, Birds, Crustacea, Echinoderms, Malacology, Marine Biodiversity Processing Center, and Polychaetes, and to helpful docent volunteers, visitors were able to view, and ask experts about, prized specimens and artifacts from the museum's vast research collections and images made during museum expeditions. Items on display, and information presented, highlighted discoveries made through the research activities, and using the collections, that make the Natural History Museum such a special place for science and for the public. Demonstrations and explanations of discoveries (see below for details on some of them) were engagingly presented by Ken Campbell, Chris Coleman, George Davis, Kirk Fitzhugh, Margaret Hardin, Gordon Hendler, Jim McLean, Cathy McNassor, Kathy Omura, and Regina Wetzer. The success of the event was evident from the numbers of visitors who asked when the next Curator's Cupboard would occur, and why this one had not been more widely advertised.

### ***Echinoderms***

In addition to organizing and hosting the Curator's Cupboard, Dr. Gordon Hendler of the Echinoderms Section displayed a large array of feather stars, sea stars, brittle stars, basket stars, sea urchins, and sea cucumbers, all collected in Belize. The exhibit illustrated Dr. Hendler's research on echinoderm's calcite "bones." He provided a compound microscope so that visiting families could see the intricately shaped bones of sea cucumbers, which are barely visible to the naked eye. Visitors also used a stereomicroscopes to examine a brittle star's skeleton, in which there are microscopic lenses that the animals use to see. Also on view were microscopic hooks found on the branching arms of basket stars, which the stars use to catch planktonic food. Thanks to Gustavo Lopez, a docent volunteer at the exhibit, a wealth of information on echinoderms was accurately presented Spanish to a continuous stream of visitors.

Right: Among the Belizean echinoderms on display was this brittle star species, which is extremely common but seldom seen. It emerges from the coral reef at night, and glows with a brilliant blue light.





## Crustacea

Discoveries abounded at the Crustacean table during the Curator's Cupboard. Traffic was continuous and questions were prolific. (So why is there no one at the table in the picture? The picture was shot prior to the doors being opened. Once the doors opened, there was only time for answering questions.)



Following the “Discoveries” theme, Collections Manager, George Davis set the table theme to be “*Crustaceans: To Be Or Not To Be.*” Why? Because over the years certain specimens that are not crustaceans have come to the department either because they were commonly named “crab” (e.g., Horseshoe Crab) or because they “looked” like crustaceans (e.g., Sea Spiders, all knees and legs). The former is a chelicerate, more akin to spiders and scorpions than crabs, and the latter, also chelicerates, are pycnogonids, in a group (Pycnogonida) all of their own. These were the “not to be.”

On the reverse side of the coin, barnacles, which are crustaceans, were once thought to be mollusks. Also, as a public service, an effort was made to inform all who stopped at the table that pill bugs (rolly pollys) are not insects but crustaceans. These were the “to be.”

To carry the theme of discovery even further, a large, flat-panel TV was set up to the left of the table showing video shot at a deep-sea vent. To balance the video, a large poster of crabs from French Frigate Shoals, Hawaiian Islands, anchored the right side of the table. The crabs, some never before noted from the Hawaiian Islands, were photographed by curator Jody Martin. Discoveries all around!

## ***Marine Biodiversity Processing Center***

Below: Kathy Omura with a small visitor at the MBPC table at the Curator's Cupboard. The MBPC shared photos and invertebrate specimens collected by Museum staff at diverse locations around the world: the western Pacific, Mongolia, Africa, and others.



## ***Vertebrate Paleontology***

Below: Curator Ken Campbell (Ornithology) and his display at the Curator's Cupboard.





## Polychaetes



Kirk Fitzhugh also was one of the participants in the 12 April *Curator's Cupboard*. While the term 'discovery' is often used by museums, we tend not to provide visitors with the full context in which it applies to all facets of science in a natural history museum. Kirk stressed in his displays that discovery is much more than simply finding new objects – discovery encompasses 'the process of reasoning from our perceptions of objects and events to theories and hypotheses that give us understanding.'

## Polychaetes....

On 6 March, Dr. Kirk Fitzhugh presented a talk at the museum on evolutionary biology and intelligent design to 15 graduate students from Greenland. The students (right) were visiting USC's Rossier School of Education to learn about their Teacher Education Program and the California K-12 educational system.

Dr. Fitzhugh also was an invited speaker to the seminar series hosted by the Department of Biological Sciences,



California State Polytechnic University. Kirk presented the talk, “Why intelligent design is not a ‘scientific’ research program” on 18 April.

### ***And More Polychaetes!***

Leslie Harris (Collections Manager, Polychaetes) gave two weekend talks in April here at the museum. The first was for R & C’s Field Discovery Series and was entitled “Marine Menace: Ghost Nets in the Sea.” Originating from her participation in a NOAA marine debris removal cruise in the northwest Hawaiian Islands last year, it focused on the damage caused by drift nets and plastic debris. Over 1 million sea birds and 100,000 marine mammals are killed every year by nets & trash. Second was “Pickled Worms, Stuffed, Snakes, and Drunken Crabs: Preserving Our Past for Our Future.” This talk was part of Education’s Amazing Preservation family weekend. Leslie provided a brief overview of the importance of NHMLAC’s research and collections, why we collect, how we collect, and how we preserve specimens and artifacts. As the Polychaete Collection Room is still closed due to 1913 renovation, she then took the audience on a tour of the Crustacea/Echinoderm wet collection area.

### ***Malacology***

As part of the Thursday R & C seminar series, Dr. Jim McLean presented *Updating the gastropod fauna of the northeastern Pacific and the northern Pacific* on April 10<sup>th</sup>, a progress report on two books in preparation, for which the illustrations are nearly finished. Jim McLean also presented sample plates for the same upcoming identification manual on North Pacific shelled gastropods and a sample of micromollusks for the April 12<sup>th</sup> Curators Cupboard. That same day Cathy and Lindsey Groves co-lead the *Magnificent Marine Invertebrates* family field trip with Ángel Valdés (Cal Poly Pomona) and Robin Savoian (Education). The event began at the museum with an orientation about tides, tide pools, and the invertebrate faunas they contain; it also included a sea star dissection, a demonstration of the SEM by Ángel, and a Malacology collection tour. The group of 11 participants reconvened at Abalone Cove Preserve where *Aplysia californica* (California sea hare), *Megathura crenulata* (giant key-hole limpet), *Pisaster ochraceus* (ocher sea star), *Strongylocentrotus urpuratus* (purple sea urchin), and *Anthopleura xanthogrammica* (green sea anemone) were observed.

### ***Bioblitz in the Santa Monica Mountains!***

*BioBlitz – Santa Monica Mountains National Recreation Area* is a 24-hour event that begins on noon, Friday, May 30. The MBPC, Entomology, and Ornithology as well as our Education Department are participating in this National Geographic and National Park Service collaboration to inventory our local biodiversity. BioBlitz relies on scientists and volunteers and invites citizens to find, identify, and learn about the plant, animal, and fungal species in our “backyard.” The Santa Monica Mountain BioBlitz will involve 200 field teams with a capacity to involve nearly 2,300 citizens and cover the largest geographical region every attempted. This should be an excellent opportunity for our museum audience to “get into the field” with some of our R&C scientists. Visit the

website (<http://www.nationalgeographic.com/field/projects/bioblitz.html>) to learn more about the event and register to participate in the field surveys.

## ***Mineral Sciences***

### **San Andreas Fault Field Trip**

On Saturday, April 26, Gem & Mineral Council members set off by bus to explore the San Andreas Fault. Dr. Bruce A. Carter, Geology Professor Emeritus and retired Dean of Natural Sciences at Pasadena City College, gave them an up-close and personal look at some of the fascinating geologic features created by the San Andreas along the northern edge of the San Gabriel Mountains between Palmdale and Wrightwood. One of the more scenic stops was at Devil's Punchbowl where the group enjoyed a picnic lunch.





## Student Mentoring and Research

### ***Work-Study Students Contribute to Museum Goals***

USC undergraduate student Anita Rai (Crustacea Lab) was featured in the April 2008 edition of the USC College of Letters, Arts, and Sciences Magazine. Anita (at right) is a fabulous emissary for the Museum, bringing attention to the valuable work of the many work-study students employed in R & C and throughout the Museum. The article and associated video are available for viewing at:

<http://college.usc.edu/news/2008/04/rai.html>



## Distinguished Visitors

### ***Malacology***

Roger Clark (Utah), a Malacology field associate who makes important contributions of Alaskan mollusks, visited Malacology in mid April for three days. Doug Eernisse (CSU Fullerton) visited Malacology to identify numerous Panamic limpets. Shirana Shahbazi, Hammer Museum (UCLA) resident artist, visited Invertebrate Zoology in search of suitable specimens to photograph for a current project. She then spent parts of three days photographing numerous echinoderms and mollusks.

## Recent Publications

**Fitzhugh**, K. 2008. Abductive inference: implications for “Linnean” and “phylogenetic” approaches for representing biological systematization. *Evolutionary Biology* 35:52-82.

**Groves**, L.T. & Alderson, J.M. 2008. Earliest record of the genus *Haliotis* (Mollusca: Gastropoda) from the Late Cretaceous (Campanian) of Los Angeles County, California. *The Veliger* 50(1):24-26, figs. 1-4.

*This paper documents the oldest known abalone from the middle middle to late middle Campanian portion of the Tuna Canyon Formation, Garapito Creek area of Topanga Canyon, Los Angeles County, California.*

**Groves**, L.T. 2008. SCUM XII: Southern California Unified Malacologists. *American Conchologists* 36(1):18-19, 1 unnumbered fig.

**Groves**, L.T. 2008. The twelfth annual SCUM meeting. *The Festivus* 40(3):43-45, 1 figure.  
*Both of the above are summaries of the recent SCUM meeting.*

**Martin**, J. W. 2008. Jewels of the Sea. *The Naturalist* (Natural History Museum of Los Angeles County), March, 2008.

- McLean**, J. H. 2008. Family Liotiidae. p. 268, plate caption, and pl. 76, in G. T. Poppe. Philippine Marine Mollusks, vol. 1, 311 pls. ConchBooks: Hackenheim, Germany.  
*The Liotiidae is a neglected family of marine gastropods (snails) under long term study by Dr. McLean.*
- McLean**, J. H. 2008. Three new species of the family Neolepetopsidae (Patellogastropoda) from hydrothermal vents and whale falls in the northeastern Pacific. *Journal of Shellfish Research* 27(1): 15-20.  
*The description of three new species of deep-sea limpets as part of a volume dedicated to new discoveries in "extreme environments" as a tribute to the late Mel R. Carriker.*
- Wang**, X., B. Wang, and Z. Qiu. 2008. Early explorations of Tabenbuluk region (western Gansu Province) by Birger Bohlin—Reconciling classic vertebrate fossil localities with modern stratigraphy. *Vertebrata Palasiatica* 46(1): 1-19.
- Shuford, W. D. and Gardali, T., editors. 2008. California Bird Species of Special Concern: a ranked assessment of species, subspecies and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds I*. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.  
*Collections Manager Kimball **Garrett** authored three species accounts and Research Associate Kathy C. **Molina** authored two others for the new monograph "California Bird Species of Special Concern," a major revision and update of the California Department of Fish and Game's important conservation initiative.*

## Staff Departures and New Staff

### ***New Curator of History***

Research and Collections is pleased to announce the appointment of Dr. Sojin Kim as our new Curator of History. Dr. Kim comes to us from the Japanese American National Museum, where she has been curator for the past 10 years. Dr. Kim is widely known for her work in developing public history exhibits that explore the rich history and diverse cultural heritage of our local communities. Sojin will join NHM on Monday, May 12.

### ***Conservator***

The Conservation Section bids a reluctant farewell to Temporary Assistant Conservator, Museum Project and Conservation Graduate Student Intern Jennifer Kim. Jennifer began her advanced internship in the Conservation Section in September of 2007. Her last day will be May 28, 2008, after she completes her Master's degree. She will then head off to work at the archaeological excavations at Sardis, Turkey.



During her time at the Museum, Jennifer performed a number of beautifully executed conservation treatments on History Collection artifacts and costumes slated for the

exhibit *Under the Sun*, including the electrically heated flight suit of early aviatrix Bobbi Trout. Above right: Jennifer is stabilizing stitching on the leather flight suit.

Right: Bobbi Trout's flight suit after treatment.



### ***Entomology: Roy R. Snelling, 1934-2008***



Roy R. Snelling, Emeritus Collections Manager of Entomology at the Natural History Museum of Los Angeles County (LACM), died peacefully in his sleep on 21 April while conducting field work in Kenya. Snelling was a colorful character who wore his Native American (Cherokee) heritage with pride, usually sporting two long braids and a headband, and was a serious and well-respected scientist. As a world-class expert on the systematics of aculeate Hymenoptera (ants, bees, and wasps), Snelling oversaw the development of a phenomenal collection of these insects at the LACM. He impressed other experts, who donated their collections, and conducted field work of his own, making collections throughout the USA, Mexico, Australia, Thailand, Hong Kong, New

Guinea, the Caribbean, and Africa. He published over 150 scholarly articles and most recently co-edited a book dedicated to his colleague, Harvard University ant expert E. O. Wilson. At the time of his death, he had just embarked on a three-month-long collecting trip in Kenya, searching for rare and poorly-known ants and bees in Kenya.

Born in Turlock, California, Snelling was one of three children of a farming family. A self-taught entomologist, he only briefly attended college. His first job was as a field entomologist for Agrotecnica del Valle in Mexicali, Mexico, followed by two years service in the US Army (1957-1959) in Georgia. He then worked for three years for the California Department of Agriculture Bureau of Entomology, before finally accepting a position at the LACM in 1963. He retired in 1993 to pursue his studies on ants and bees full-time, traveling extensively on field expeditions, many of which were supported by Conservation International.



Snelling was married and divorced twice. He had three children (Gordon, Michael, and Shelley), two grandchildren (James and Vivian), and two great-grandchildren (from James and his wife Rebecca: Brandon & Madeline). One son, Gordon, is also a publishing entomologist, and in the recently edited Wilson book there is a paper with contributions from three generations of Snellings: text by Roy and Gordon, and illustrations by James.

## Miscellaneous

### *March of Dimes*

Many thanks to everyone who generously donated to the March of Dimes campaign in 2008. The annual *March for Babies* took place on Saturday, April 26<sup>th</sup>, in Griffith Park. LACM participants included Christyann Evans (Education), George Davis (Crustacea), Terry Togiai (and her granddaughters Mia & Tera), Marilyn Bello (and her dogs Max & Mitsi), and Cathy & Lindsey Groves (Echinoderms & Malacology).

At right: 2008 March of Dimes *Walk for Babies* participants (L to R), standing: Christyann Evans (Education), Lindsey Groves (Malacology), Cathy Groves (Echinoderms), Terri Togiai (R&C Office); front row, Marilyn Bello (Finance) [with Max & Mitsi] and Terri's lovely granddaughters Tera & Mia.



### *Museum Statement on Evolution*

The responsibility of a Natural History Museum to the public is incredibly important and includes the need to present accurate statements about the nature of science. With the encouragement of Paul Haaga, president of the Board of Trustees of the Natural History Museum of Los Angeles County, selected members of the Research & Collections staff worked collaboratively throughout April to write the following statement, in part to address questions that our visitors sometimes have about the nature of science and about evolutionary biology in particular. The lead author was Jody Martin, but the statement went through many revisions and is now widely agreed-upon by the Museum's biologists. Special thanks for their thoughts and contributions go to (in alphabetical order) Larry Barnes, Brian Brown, Ken Campbell, Luis Chiappe, Kirk Fitzhugh, Kimball Garrett, John Harris, Gordon Hendler, Dean Pentcheff, Chris Thacker, Xiaoming Wang, and Regina Wetzer.

We have now asked to have the statement posted prominently on the Museum's main web page to allow our visitors easy access to what we feel is a helpful and clarifying statement.

***The Natural History Museum of Los Angeles County  
Statement on Evolution***

The Natural History Museum of Los Angeles County is a collections-based research and educational institution that relies on science to enhance our knowledge of the natural world.

The goal of science is to acquire ever-increasing understanding of the objects and events we encounter. Such understanding is obtained through the continual critical evaluation of testable hypotheses and theories.

Evolution is a central concept in modern science. Evolutionary theories are supported by evidence from such diverse fields as genetics, paleontology, chemistry, and physics. The use of evolutionary biology as a means of acquiring understanding is consistent with the overall goal of science, as the theories involved are available to critical evaluation. Evolutionary biology allows us to explain the amazing diversity of life on Earth today and how diversity has changed over time.

Because understanding evolution is important for both scientists and the public, the Natural History Museum emphasizes that evolutionary biology belongs in school curricula and textbooks as well as in public museums. Although the topic is sometimes portrayed as controversial, it is no more controversial among scientists than are the theories explaining gravity, light, sound, or electricity.

The Natural History Museum, with its mission to inspire wonder, discovery, and responsibility, recognizes that evolutionary biology is fundamental to understanding biological diversity and is critical for both scientific research and museums. The Museum welcomes people of all beliefs and backgrounds to join us as we explore, through science, the wonders of the natural world.

Good starting places for finding additional information about evolution and its relation to other concepts and issues include:

*Science, Evolution, and Creationism* (a publication of the National Academy of Sciences) <http://decapoda.nhm.org/pdfs/27680/27680.pdf>

Evolution 101 (Museum of Paleontology, University of California Berkeley) <http://evolution.berkeley.edu/evosite/evohome.html>

National Center for Science Education  
<http://www.ncseweb.org>

The Clergy Letter Project  
[http://www.butler.edu/clergyproject/rel\\_evolution\\_sun.htm](http://www.butler.edu/clergyproject/rel_evolution_sun.htm)

The R & C Newsletter is issued 5 times per year, in January, March, May, September, and November, by the Research and Collections staff of the Natural History Museum of Los Angeles County. Currently the Newsletter is compiled and edited by Dr. Joel W. Martin, Curator of Crustacea and Chief of the Division of Invertebrate Studies. All issues of the Newsletter can be found on the web at: <http://collections.nhm.org/newsletters>

