

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.

January, 2008

(covering the months of November and December, 2007)

Collection News

Mineral Sciences

Spectacular 2007 End-of-Year Mineral Donations

Beverly Savinar donated six exceptional mineral specimens from the collection she and her late husband Hyman built. Crystals of gem minerals, a particular strength of the Savinar Collection, are well represented by two fine specimens of bicolor elbaite tourmaline, a striking delicate green spodumene and one of the finest known classic “silver” topaz crystals from Kleine Spitzkopje, Namibia. Also included in the donation were a wonderful quartz specimen consisting of two intergrown Japan-law twins, which graced the Jan./Feb. 1987 cover of *Rocks & Minerals* magazine, and one of the finest known specimens of golden barite from Elk Creek in South Dakota.



Elbaite (11 cm tall)
Paprok, Afghanistan



Quartz Japan-law twin (17 cm across)
Brumado, Brazil



Elbaite (12.5 cm tall)
Golconda mine, Brazil



Spodumene (11.5 cm across)
Resplendor mine, Brazil



Topaz (6.5 cm tall)
Kleine Spitzkopje, Namibia



Barite (11.5 cm across)
Elk Creek, South Dakota

Duane and Charlotte Eidahl made the second donation of specimens from the exceptional collection of their late son David. The 2007 donation consisted of seven specimens: fluorapatite from Panasqueira, Portugal; fluorapatite with actinolite from Knappenwand, Austria; ferro-axinite on quartz from Bourg d'Oisans, France; siderite with quartz from Alleverd, France; elbaite with albite and quartz from Elba Island, Italy; diopside from Tsumeb, Namibia; and wulfenite from Tsumeb, Namibia. The complete David Eidahl Mineral Collection is on display in the Hall of Gems and Minerals. For photos and a story about the collection go to: www.nhm.org/research/minsci/eidahl.htm.



Only a few days before his death on December 19, 2007, Mel Hindin donated a superb specimen of emerald with fluorapatite from Chivor, Colombia. This specimen appeared on the cover of the May/June 2004 issue of *Rocks & Minerals* magazine. For more than 15 years, Mel was one of the Mineral Sciences Department's strongest supporters. He donated many exceptional gems and minerals and served as a member of the Board of Directors of the Museum's Gem & Mineral Council. Mel's involvement in the Museum went back even further. He was an active docent for many years and especially relished giving tours of the Hall of Gems and Minerals. Mel served as a member of the Alliance Board and was a Museum Fellow. His remarkable generosity, affability and humor will be greatly missed.

Ornithology

The Ornithology section library received a donation of the monumental 7-volume set of the *Handbook of Australian, New Zealand and Antarctica Birds*, published by Oxford University Press between 1990 and 2006. The set belonged to the late Dr. David W. Bradley, and was donated in his memory by his brother Dr. Richard A. Bradley. Dave, who passed away in November just before his 59th birthday, was an accomplished naturalist with advanced degrees in biostatistics from UCLA and USC (PhD, 1989). For over 20 years he was the computer and biostatistics "guru" at California State University Long Beach, helping dozens of graduate students and faculty members in ornithology and other scientific fields. We are honored to receive this donation in Dave's memory.

Crustacea

Most of the specimens of crabs and other crustaceans from the French Frigate Shoals (Hawaii) expedition in 2006 have now arrived and are in curator Jody Martin's office, where they will be the subject of his research for the next two to three years.



Field Work

Vertebrate Paleontology

Curator of Vertebrate Paleontology Lawrence Barnes traveled the length of the Baja California Peninsula in November with Gabriel Aguirre, who is a Masters Thesis student at the Universidad Autónoma de Baja California at Ensenada. (Barnes is on Aguirre's thesis committee). They documented many of the known Cenozoic marine vertebrate fossil sites on the Peninsula, some of which will be discussed in Gabriel's thesis about the evolution of dolphins in the Gulf of California.



Exposures of the Pliocene age Tirabuzon Formation (above left) near Santa Rosalia on the Gulf side of the Peninsula, and of the Pliocene age Salada Formation south of Santa Rita near the center of the Peninsula (above right), have yielded many fossils that demonstrate the diversity of extinct species of dolphins that previously lived in the Gulf of California between about 2 and 4 million years ago. These sites were described in a book chapter written by Barnes which was published in Mexico in 2002.

Malacology

In mid November Lindsey Groves spent a day at the California Academy of Sciences, San Francisco, examining fossil mollusk specimens for an on-going research project. While searching in the collection he also discovered that the academy has numerous hypotypes (figured specimens) that they were unaware had been illustrated by several authors back in 1986.

Meetings, Workshops, and Presentations

Invertebrate Paleontology

Harry Filkorn, Invertebrate Paleontology, attended the Geological Society of America annual meeting in Denver, 28-31 October, 2007, and gave a presentation on the fossils from a newly discovered locality in the Cretaceous strata of the Santa Ana Mountains. The fossil biota from this locality includes reef corals, rudists (an extinct kind of bivalve),

calcareous algae, and several new species of mollusks. This diverse marine biota indicates that a tropical environment with coral reefs existed along parts of the southern California coast during the Late Cretaceous. Notably, this is the first recognized occurrence of a Late Cretaceous coral reef biota in southern California.

External Funding

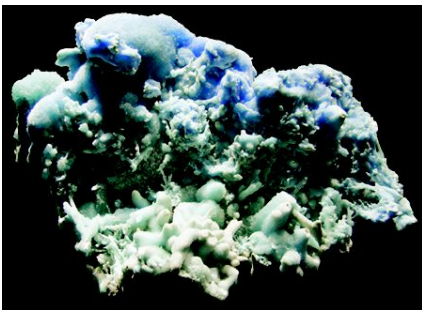
Vertebrate Paleontology

Curator Xiaoming Wang, in collaboration with his Mexican colleagues, Oscar Carranza-Castañeda and Jorge Aranda-Gomez, from Centro de Geociencias at Universidad Nacional Autonoma de Mexico, was awarded a National Geographic Society grant (\$20,150) for field work in the late Cenozoic basins of central Mexico. The main objective of this grant is to collect fossil mammals in the latest Miocene through Pliocene that are relevant to the question of the Great American Biotic Interchange as land connections at the Panamanian Isthmus was formed during the early Pliocene.

Public Outreach

Treasures from the Vault

On 18 November, the “Treasures from the Vault” exhibit opened to the public. This limited-engagement exhibit hosts a selection of some of the most valued, impressive, or interesting items from the museum’s collections of over 35 million specimens and



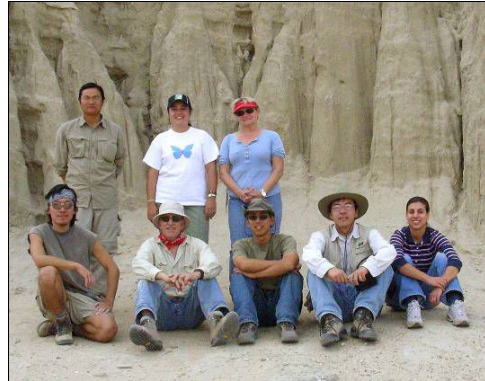
artifacts. Curated by Acting Deputy Director for R&C Margaret Hardin, the exhibit items were selected by R&C curators, based on their knowledge of the holdings in their care. The objects, and their beautiful presentation by Exhibits staff, have won widespread acclaim throughout the museum, yet they only scratch the surface of the wonders that are in our holdings. Congratulations to all who were involved, especially the curators and curatorial staff of the Dinosaur Institute, Entomology, Ethnology, History, Ichthyology, Invertebrate Paleontology, Mammalogy, Marine Biodiversity Processing Center, Crustacea, Mineral Sciences, Ornithology, and Vertebrate Paleontology.



Vertebrate Paleontology

A full roster of about 50 people joined our annual Red Rock Canyon family member field trip during the first weekend of November (3rd-4th). This year, our enthusiastic participants found carnivore canine, camel incisor and limb bones, oreodont jaw (an archaic even-hoofed herbivore often likened to modern sheep), and others. Once again, we managed to entice Dave Whistler, our Curator Emeritus, back from his retirement to lead the trip, and as usual, we would not be able to put this together without help from our Education Division (see photo below).

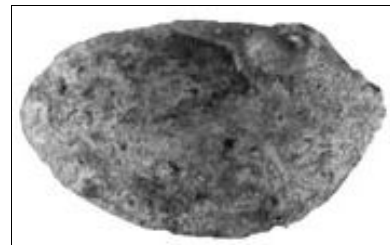
Right: Group photo of museum personnel during our Red Rock Canyon field trip. Front row (sitting) left to right: Jack Tseng, David Whistler, Gary Takeuchi, Xiaoming Wang, Robin Savoian; back row (standing) left to right: Li Qiang (a visiting scholar from China), Grace Cabrera, Christy Evans.



Left: Marlyn Montgomery, a participant of the Red Rock Canyon trip, is proudly holding an oreodon upper jaw fragment she discovered from Locality XW24.

Malacology

In late November Lindsey Groves presented *Abalone and the fossil record: No baloney* as part of the Thursday noon-time seminar series. Abalone have a long but disjunct fossil record from the Late Cretaceous (Turonian) through Recent. In fact the oldest known abalone is in the LACMIP collection from the Tuna Canyon Formation of the Topanga Canyon area. Unfortunately the specimen is a tiny (~6 mm) internal mold but distinctly an abalone (pictured here).



Vertebrate Paleontology (again)

In November, Lawrence Barnes, Curator of Vertebrate Paleontology, was an on-camera participant for a film series being made for the History Channel, to be aired during the 2008 Season. The series is about various ancient animals, and Dr. Barnes' participation deals with a documentary about fossil sperm whales.



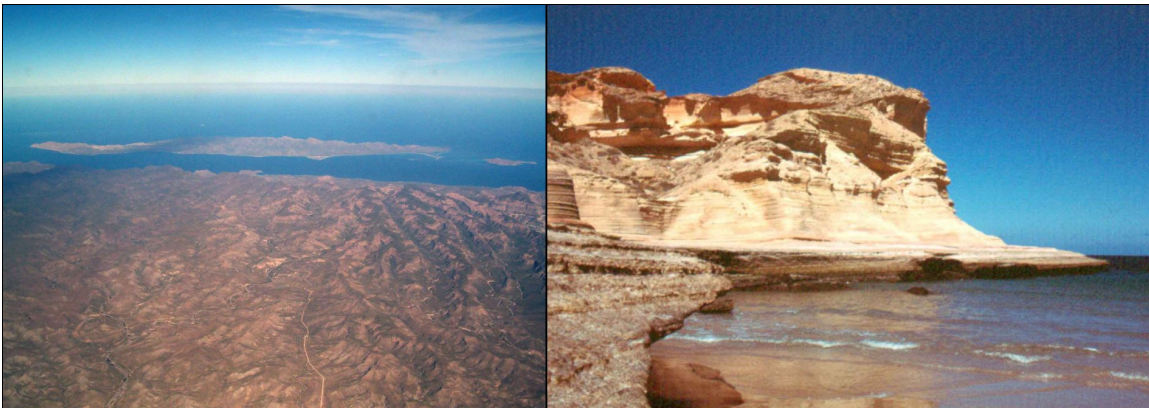
During late November, Dr. Barnes gave a series of lectures about marine mammal evolution at the Centro Interdisciplinario de Ciencias Marinas (above left) in La Paz, Baja California. This course taught by Barnes has been a popular and nearly annual event, sponsored since the early 1990s at this Mexican Federal University, and is attended by undergraduate and graduate students of the marine sciences from various colleges and universities throughout Mexico, as well as from other countries.



Dr. Barnes also delivered a public lecture about desmostylians as part of the Museum's Weekend Programming on December 2. Members of the curious extinct mammalian order Desmostyilia inhabited the margins of the North Pacific Ocean from approximately 30 to 9 million years ago. They were herbivorous, amphibious beasts (at left) that probably looked rather similar to hippos.

Student Mentoring and Research

Vertebrate Paleontology



Isla San Jose from the air.

Fossil site at Punta Colorada, Isla San Jose.

In 2003, during a Museum Member's Travel Program cruise on the ship "Don Jose" in the lower Gulf of California, we discovered on Isla San Jose an approximately 3 to 4 million-year-old fossil skull of a large dolphin that is related to the living pilot whales and

false killer whales. Jorge Fernandez, then a student at the Universidad Autónoma de Baja California Sur (UABCS) in La Paz, was on that cruise, and he returned a few weeks later to collect the skull. The specimen is now part of the collections of the UABCS, and it became the primary specimen in the now-completed Licenciatura Thesis of UABCS student Gabriel Aguirre (Dr. Lawrence Barnes was on his Thesis Committee).



Gabriel Aguirre with skull replicas.

Replica being installed at Isla San Jose.

Gabriel Aguirre is now enrolled in graduate school at the Universidad Autónoma de Baja California at Ensenada, where he is studying the evolution of dolphins in the Gulf of California. To fulfill provisions of the collecting permit, in October of this year Gabriel returned to Isla San Jose to install at the discovery site a replica of the dolphin skull, which he made at the university in Ensenada. Installed with the replica is a plaque that acknowledges the participation in the project by the Natural History Museum of Los Angeles County. The installation of the replica enhances eco-tourism activity at this picturesque and popular destination island.

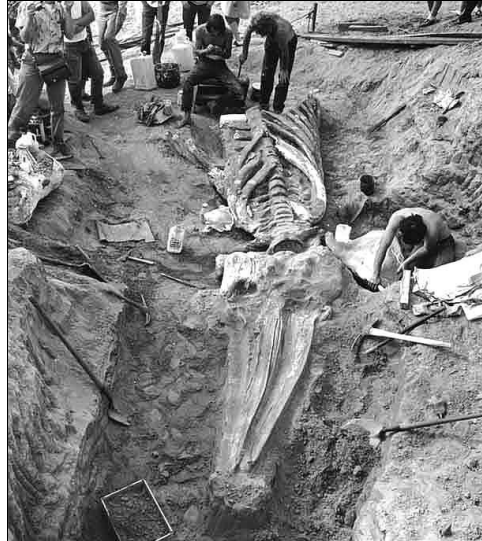
Volunteers and Research Associates

Vertebrate Paleontology

Vertebrate Paleontology Volunteers John Kilburn and Henry Moon both have given the Museum hundreds of hours assisting Kathleen Gonzalez in the preparation of the San Pedro Gray Whale fossil for exhibit in the planned Cenozoic Mammal hall.

Right: The San Pedro Gray Whale being excavated in 1972.

Below: John Kilburn (left) cleans a rib of the Gray Whale, and Henry Moon (right) cleans the bones of the gray whale's forelimb, or "flipper."



Distinguished Visitors

Malacology

Juli Kalman & Ed Maestro (Cabrillo Marine Aquarium) visited in early November to observe the Malacology storage facilities; Deborah Roman (CSUN Anthropology) examined the Malacology chiton holdings as part of her MS thesis on midden deposits in northern Baja California, Mexico; Lance Gilbertson (Newport Beach, CA) visited in late November and continues his work on helminthoglyptid snails of the southwest U.S.; also in late November, Dan Yoshimoto (Eureka, CA) visited Malacology to continue with his documentation of the marine life of Humboldt Bay, northern California; Zoila Graciella

Castillo (UNAM) spent a week in early December examining and photographing the Malacology holdings of Panamic oysters for her PhD dissertation; and Bill Fenzan (Norfolk, VA) & Bill Cargile (Woodside, CA) spent several days in early December examining and photographing Malacology holdings of the family Conidae.

Vertebrate Paleontology

In November through December, Xie Guangpu from the Gansu Provincial Museum in the city of Lanzhou, Gansu Province, China, visited Xiaoming Wang for collaborations on the geology and paleontology of Tibetan Plateau.

Recent Publications

Brown, B. V. and G. Kung. Revision of the New World *Dohnrniphora* Dahl species with hind tibial setae (Diptera: Phoridae). *Arthropod Systematics & Phylogeny*. 65: 155-235.

This is a large revision, based on our NSF-funded “Basal Lineages of the Phoridae” grant. We treat a large subgroup of the New World species of Dohnrniphora, consisting of 88 species, 52 of them new to science, and many of them collected by us for the first time. In addition to the 246 figures



(mostly scanning electron micrographs –SEM images), we deposited almost 250 color images of these flies on the NSF-funded Morphbank site, to make future identifications easier. We are grateful to illustrator Brian Koehler for all his work with preparing line drawings, digitally “cleaning” the SEMs, obtaining the digital color images, and posting everything on Morphbank.

Filkorn, H. F. 2007. Relict of a lost Pacific Coast: Late Cretaceous (Campanian) reef fauna from the Black Star Canyon quadrangle, Santa Ana Mountains, southern California. *Geological Society of America, Abstracts with Programs*, 39(6):417.

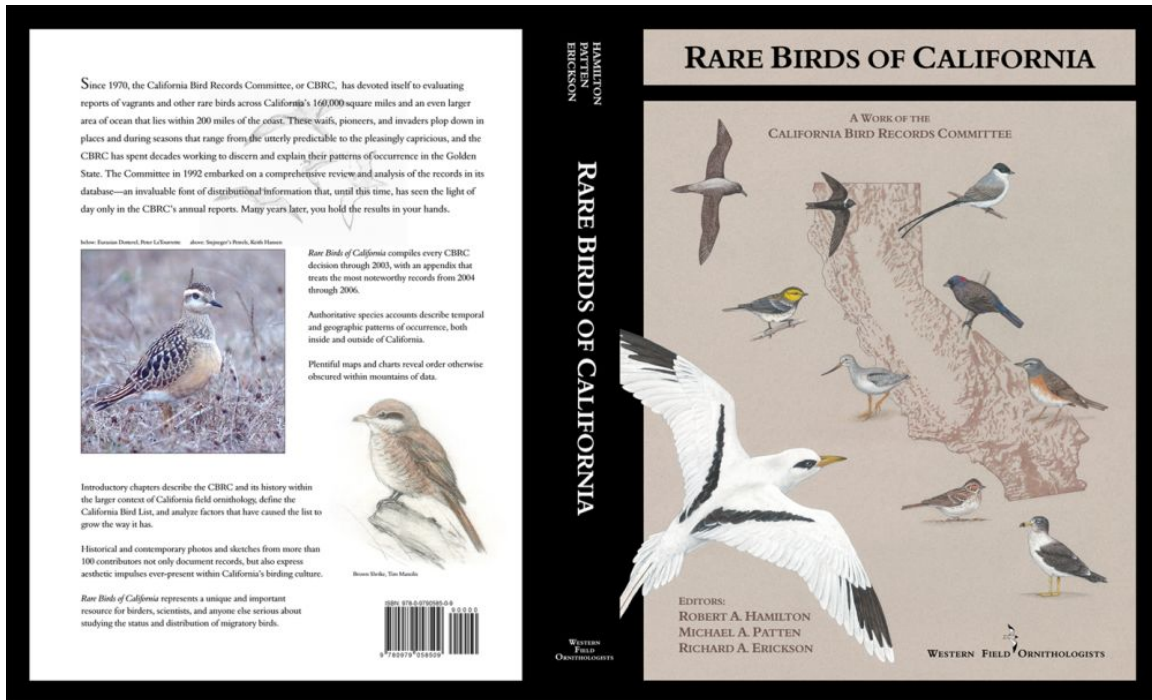
McLean, J. H. 2007. Book Review: Marine and brackish water Gastropoda of Russia and adjacent countries: an illustrated catalog. Yu. I. Kantor & A.V. Sysoev, 2006. KMK Scientific Press, Ltd. Moscow, 371 pp., 140 col. pls. *The Veliger*, 49(3): 212-213.

Scott, R. W., and **H. F. Filkorn**. 2007. Barremian - Albian rudist zones, U.S. Gulf Coast, p. 167-180. In R. W. Scott, ed., *Cretaceous Rudists and Carbonate Platforms: Environmental Feedback*. SEPM Special Publication Number 87, Tulsa, Oklahoma.

Ornithology

Rare Birds of California was published by Western Field Ornithologists late in 2007. Edited by R. A. Hamilton, M. A. Patten and R. A. Erickson, this work details the status of rare migrant and vagrant bird species in California by reporting the results of the work of the California Bird Records Committee (CBRC) since its inception in 1970. Recognizing that most occurrences of rare migrants in California are no longer supported by specimens, the Committee reviews and archives photographs, written descriptions and other documentation for all unusual records. Ornithology Collections Manager **Kimball**

Garrett is the second-longest serving member of the CBRC, having been a member for 24 different years since 1978.



Staff Departures and New Staff

Vertebrate Paleontology



Debora Lee (above left) and Daniel Gabai (right) have been hired to assist Kathleen Gonzalez in preparation of the San Pedro Gray Whale fossil skeleton that we will exhibit in the planned new Cenozoic Fossil Hall. This is the world's only known skeleton of a fossil gray whale.



Meredith Staley (above left) has been hired to assist Gary Takeuchi and Maureen Walsh in preparation of the skeleton of our paleoparadoxiid desmostylian that we will also exhibit in the planned new Cenozoic Fossil Hall. Paleoparadoxiids are an extinct group of amphibious, herbivorous marine mammals that lived exclusively in the North Pacific Ocean (above right, a Japanese example as it is exhibited in Hokkaido).

Miscellaneous

There's a SPIDER in Mineral Sciences

The research capabilities of the Mineral Sciences Department took a quantum leap forward in November with the purchase of a new state-of-the-art X-ray diffraction system. For more than 30 years, curator Tony Kampf had been relying on X-ray diffraction technology dating back to the early 1950s.

X-ray diffraction is an essential method for the study of minerals. A highly focused beam of X-rays is directed at a small sample of a crystalline material. The wavelength of the X-rays is roughly the same as the spacing between the atomic planes in the crystal lattice. Because of this, the crystal lattice acts as a diffraction grating causing the X-ray beam to be deflected at various angles and at various intensities as it passes through the sample. By recording and analyzing the resultant X-ray “reflections”, much can be determined much about the nature of the crystal lattice.



Two basic techniques are employed. A powdered sample placed in the X-ray beam yields a “powder pattern” consisting of a series of rings. This pattern serves as a “fingerprint” allowing the identification of the mineral sample. When a single crystal is placed in the

X-ray beam, a three dimensional array of X-ray spots is produced. This type of data can be analyzed to determine the complete atomic structure of the mineral.

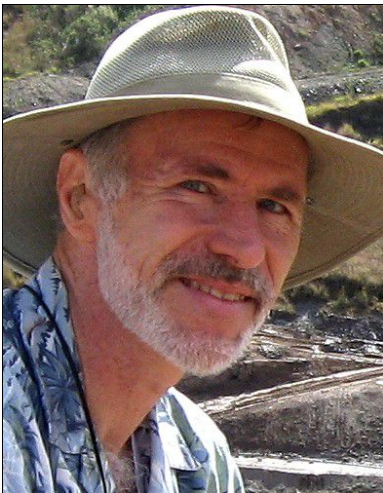
The new X-ray system made by the Rigaku Corporation is known as the R-AXIS SPIDER. It is a fully integrated computer controlled high-resolution diffraction system featuring a unique large area curved imaging plate. The system will handle both powder and single-crystal studies with equal aplomb. In fact, this amazingly versatile system can do some things that no other system can do – such as obtain a virtual powder pattern of a gemstone for identification without damaging the gemstone! The R-AXIS SPIDER was purchased with funds from the Mineral Sciences Department's John Jago Trelawney Endowment.

Museum staff are invited to visit the Mineral Sciences office and laboratory complex at the rear of the Hall of Gems and Minerals to see the new equipment in action. The system is capable of analyzing any crystalline material (not just minerals) and has complete identification databases for both inorganic and organic materials.

Oh yes – in case you're wondering, the acronym **SPIDER** stands for **Single Plate Imaging Detector - Enhanced Resolution**.

Mineral Sciences

Tony Kampf Appointed to International Commission



Dr. Tony Kampf, Curator of Mineral Sciences, has been appointed by the Council of the Mineralogical Society of America to represent the United States on the *Commission on New Minerals, Nomenclature and Classification* (CNMNC). This commission of the International Mineralogical Association is charged with approving all proposed new mineral species and mineral names, acting on proposals to discredit existing mineral species that are reported to be equivalent to other mineral species or otherwise invalid, and developing or revising mineralogical classification schemes for specific mineral groups. The CNMNC was formed in 2006 by a merger of the *Commission on New Minerals and Mineral Names* (CNMMN) and the *Commission on Classification of*

Minerals. The CNMMN was established in 1959 and since that time has gained the overwhelming recognition of the international mineralogical community.

Entomology

Entomology Curator Brian Brown has accepted the position of Acting Associate Deputy Director for Research & Collections. This is a four-year term appointment, during which he will have increased administrative responsibilities and will act as Deputy Director during Margaret Hardin's absences. Brian will continue his research and collections activities as Entomology Curator throughout the period.

R & C Office

Congratulations to Maria Ponce, Administrative Assistant in R&C, on her wedding to Peter Haas on 30 December of this year. The happy couple honeymooned in Hawaii for the next week.

