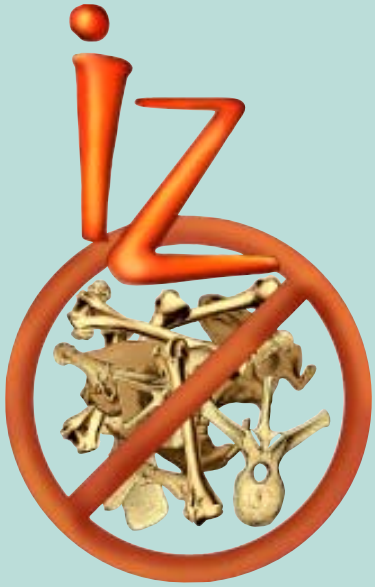

NO BONES
NEWSLETTER

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Section of Invertebrate Zoology
Department of Systematic Biology
National Museum of Natural History
Smithsonian Institution

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Mission Accomplished

Paul R. Greenhall

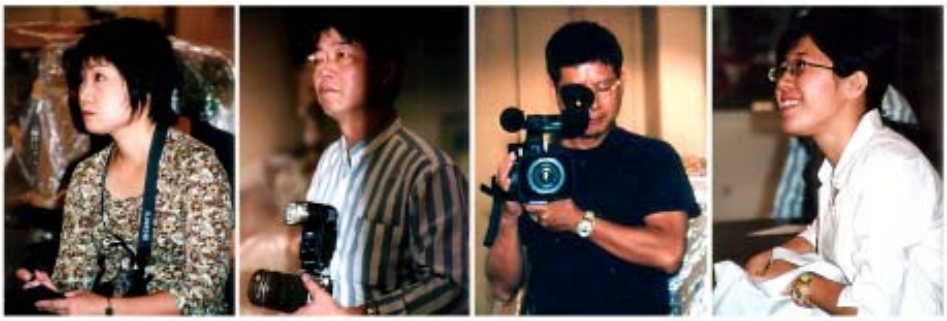
Mid-August, I received an e-mail from my Taiwan colleague, Yi-Jung Lin (Dr. Robert Hershler's former summer intern), saying the Taiwan Cetacean Society was sending specialists on a three day fact finding mission to visit both the Smithsonian and the Baltimore Aquarium. They were arriving the first week of September. Their goal was to gather data on how to design, create and complete (by January 2003), a 2,300 square foot traveling exhibit on the ecology and conservation of Taiwan cetaceans. Each member of the team had specific responsibilities: Ming-Hua Lee, education and training, Hung-Tu Ko, exhibit design, Wen-Chi Lin, video documentation, and Yi-Jung, team leader/interpreter.

To accomplish their mission, logistics had to be resolved. Each meeting had to cover all or most of the team needs, and answer questions such as: How is science successfully taught to students? What type of exhibit would best fit their needs? What are the steps from exhibit design to installation? Who chooses the designer and exhibit contractor(s)? What are the protocols for use of copyright protected audio visual materials and photographs? What type of camera is used to film marine mammals at sea?

Linda Deck, formerly of the Office of Exhibits, recommended that they meet with the traveling exhibit coordinator, Joe Madeira. I contacted Joe, Richard Efthim, Naturalist Center Director and Zoologists, Drs. Jim Mead and **Clyde Roper**. I was unable to schedule anything with the National Aquarium until Helene Lisy of the Naturalist Center came to my rescue. She put me in touch with Adrianne Nickerson, Executive Assistant to the Executive Director's Office of the National Aquarium.

Sept. 3, 2002 - Naturalist Center, Office of Education

The Naturalist Center is like a mini natural history museum with several collection storage units, preserved scientific specimens, as well as the occasional traditional mounts, each within a classroom setting. It is located in Loudoun County, VA, nestled at the foot of the Shenandoah and about forty minutes away from the museum - if one follows directions! After twenty minutes of driving we back tracked to I-495. I missed the exit! Richard



The Taiwan Cetacean Society (left to right): Ming-Hua Lee, Hung-Tu Ko, Wen-Chi Lin, and Yi Jung
(Photos for story by Paul Greenhall)

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COVER STORY CONT.

Richard Efthim, Naturalist Center Director, demonstrating the basic components of a successful science curriculum.

Efthim greeted us, and laughingly said "I figured you'd get lost . . . , 'Poor Paul". We all laughed.

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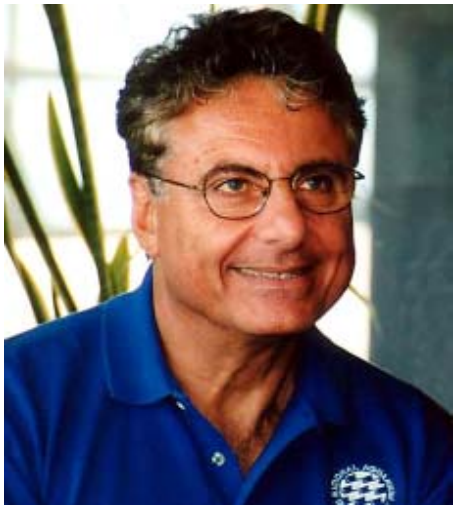
Stone Ridge High School teacher and naturalist, Brian Kirk, provided a brief overview of his role at the Center. Richard described its function and the basic components of a successful science curriculum by drawing three intersecting circles on the chalk board. A Naturalist Center video demonstrated two different science teaching methods: a) the teacher talks about a specimen describing its history while the student listens and asks questions, and b) the teacher presents the student with a problem to solve and acts as facilitator by observing the student unravel the mystery using the available resources. Richard stressed "It is important to be able to find ways to give museum visitors opportunities to be active learners in the same ways that scientists are active learners. And it is through this active participation that the student learns and retains the lesson's information over time."



Joseph Geraci

Sept. 4, 2002 - National Aquarium in Baltimore

Scheduled meetings have a way of mutating, and ours had been changed from noon to an earlier 10:30 am so Ming-Hua could meet with Dr. Geraci, who had visited Taiwan several years prior. Nicki Cindrich, Administrative Assistant, Biological Programs, greeted us and turned the group over to Docent Ralph Adams, who took us on a tour of the exhibits.

Module exhibit, National Aquarium

We then met the Director of Biological Programs, Dr. Joseph Geraci. His enthusiasm and fervent desire to assist them was unimaginable. "Get me a list of your needs in English, and I'll contact my colleagues for assistance."

The team was treated to the noon Dolphin performance. And after disinfecting our shoes we stepped behind the Dolphin Exhibit to meet Chris DiAngelo, Curator of Marine Mammals who described the dolphin breeding and training programs. In

continued on page 3

Joe Madeira

addition, Ocean Health Program Manager, David Schofield, described health treatments and the Aquarium's recovery program for stranded marine animals.

Sept. 5, 2002 - Office of Exhibits, NMNH

We returned to the exhibits with Nancy Hotchkiss, Exhibit Designer, who discussed the various types of interactive exhibits. Upon learning the size of the anticipated Taiwan exhibit, Nancy recommended a module exhibit format be used for its versatility, adaptability, and relative ease of transport. Dr. Geraci also drew a diagram explaining the merits of the module exhibit idea.

Tyjuana Nickens brought the team over to meet **Drs. Robert Hershler** and **Jerry Harasewych**, and gave a brief tour of the Mollusks collection. The group then went to Exhibits to meet Joseph Madeira. Joe described the exhibit approval process, explaining that it involves several stages before one is actually built and installed. "It is a shared process between educators, exhibit designers and research scientists. A prospectus or brochure briefly discussing the exhibit is prepared early in the approval process, then distributed to various private organizations who might be interested in supporting the exhibit", he said. Joe added that to protect specimens used in traveling exhibits wooden crates are custom built. Each specimen has its own spot or mold within the crate.

The exhibit structures, like the thick plexiglass exhibit walls, are placed in cradle-like crates. Each crate has a groove built into its base to facilitate the move via forklift. Audio exhibits no longer require the installation of speakers. He said, "The picture itself acts like a speaker and resonates when the speaker wires are glued to the back of it!"

Sept. 5, 2002 - Invertebrate Zoology (Mollusks) & Vertebrate Zoology (Marine Mammals)

The Taiwan Cetacean Society's prospectus, a pictorial postage stamp book on the marine mammals of Taiwan illustrated by Hung-Tu Ko states, "there are 80 species of marine mammals worldwide, and 31 of these species are found in the waters of Taiwan". The most common species observed are: Bottlenose, Risso, Pan-tropical Spotted, Long Snouted Spinner and Fraser's Dolphins, as well as Killer, Sperm and Humpback Whales. April is the best time of the year to observe them on the east coast of the Island. Further, Taiwan fishermen have hunted marine mammals for food since 1913. Interest in marine mammal conservation was prompted in 1990 when the news media published a horrific account of Penghu fisherman butchering hundreds of Bottlenose Dolphins. Taiwan marine mammals have since become protected under CITES, and in 1998 The Taiwan Cetacean Association was established. The team met with Dr. James Mead in the Mollusks Library where he explained that the science of marine mammals and cephalopods developed primarily due to human interest in them as a food source. **Dr. Clyde Roper** added, "Researchers studying marine mammal food habits often find cephalopod beaks in their stomachs, as beaks do not digest. This information, including the depths at which the animal was found, provide sufficient data for specialists to ascertain the distribution of specific marine mammals and cephalopods." Clyde described an underwater camera specifically used for the successful study of marine mammals. The camera is buoyant, has a large suction cup and includes a tracking device. "A researcher comes alongside a whale, presses the suction cup against the animal's skin. The camera is removed via remote signal from the research vessel or is time-released and floats to the surface and retrieved."

Clyde Roper and James Mead

The Taiwan Cetacean Society's team and I drove close to two hundred miles in three days to accomplish the mission. They were very generous, gracious, and professional. I was honored and privileged to assist them during their short visit.

FROM THE CHAIR'S CHAIR

Educational Outreach Activities

Dave Pawson
Interim Head, Invertebrate Zoology

In his farewell address, President George Washington urged his contemporaries to "promote ....institutions for the general diffusion of knowledge". James Smithson's bequest provided for the establishment of the Smithsonian Institution, for the "increase and diffusion of knowledge". Did Washington's speech lead Smithson, who had never been to North America and apparently had very few contacts here, to leave his fortune to the United States? We will never know. But how fortunate we are that Smithson did so, and that we are tied to this great and grand Institution!

What did Smithson mean by his grand charge to this nation? "Increase..of knowledge" - no problem; Smithson was asking us to study things, and this we do. "Diffusion of knowledge" is another matter. What IS diffusion of knowledge - can it be simply the publication of scientific results? We must publish or perish; are we thereby fulfilling our charge to diffuse knowledge? When I publish a paper describing a new species of sea cucumber it may be carefully read by a dozen people around the world. Is this enough diffusion? A paper on a broader topic, for example on life on the deep-sea floor, may be read by two or three hundred people. Aha - big, big diffusion?

For a little more than 100 years the Smithsonian did its diffusion in two ways: 1) By publishing scientific literature, and 2) By running the International Exchange Service, a bureau of the Institution whose function was to collect and send scientific publications to all parts of the world. This great knowledge-by-mail project, totaling approximately one million parcels per year after World War II, aided the rapid growth of science by materially assisting in the exchange of ideas.

How do we diffuse today? We consult on traveling exhibits for display elsewhere in the USA and abroad. We write articles for newspapers and popular magazines. We give lectures to a wide variety of audiences. We teach in colleges. And, of course, there's the world wide web - the new home for a great mass of scientific information. Are we diffusing adequately?

Dr. Dave Pawson (Photo by Popular Science)

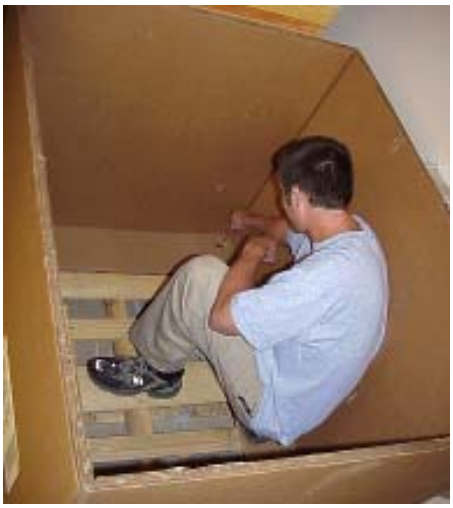
Take any 25 tourists coming into the Natural History Museum. Ask them if they know that there are hundreds of experts in this museum studying everything from mollusks to moths to meteorites. Count the raised hands: no hands. Take 25 Smithsonian Resident Associates, who have a special interest in, and knowledge of, the Smithsonian, and ask them the same question. Count the raised hands: one hand. Shouldn't all of these people know what we're doing? Of course they should.

So, I don't think we're diffusing adequately. In Invertebrate Zoology we plan to help rectify this situation by taking our research and collections message out to our visitors. In the Museum's public areas we will have tables set up, with expert staff members on hand to explain sea stars, lobsters, worms, corals to the visiting public and to convey to our visitors the excitement and wonder of our work. Over the course of a week we will reach many hundreds of visitors; after a year, hundreds of thousands of visitors will have returned to their homes in Silver Spring, Seattle, Sydney and Smolensk knowing exactly what we in IZ are doing, and why we're doing it.

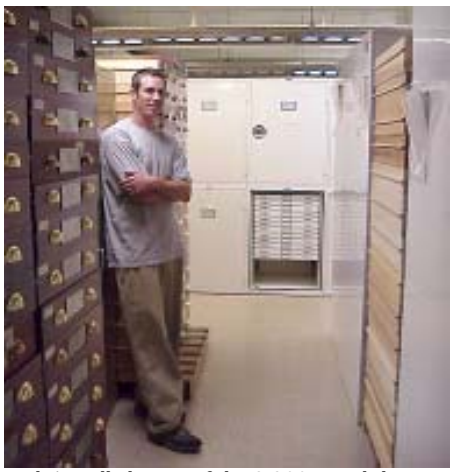
It's another small but important step along the road to "adequate diffusion". It would probably make both Washington and Smithson happy!

"Information's pretty thin stuff, unless mixed with experience"
- Clarence Day

Wooden drawers (approx. 50 years old) towered along the hall as they were replaced.



Staff learned that those rustling sounds came from "Josh in the box".



Josh installed most of the 9,900 metal drawers.
(Photos by Yolanda. Villacampa)

Behind the Drawers

Josh Harris

Blood, sweat and even a few tears have been shed, but one year into the Mollusk Drawer Curation Project significant headway has been made into completely moving, re-curating and updating the Museum's dry Mollusk Collections.

The process began over two years ago when the entire wet and dry Mollusk Collections (along with Mollusk staff) were relocated from the East Wing of the Natural History Building to the West Wing. One of the major changes that took place during this move involved the installation of new metal quarter-units to house the dry collections.

Our multi-faceted project began in November 2001 with the first shipment of new steel curation drawers to be housed within the new units. The procedure of installing the drawers began anew each month as another shipment arrived by semi-truck. I definitely had a bit of that sinking feeling each month as I watched the crew unload pallet after pallet of drawers in boxes, about 900 to 1000 in each shipment. I knew I had some serious work ahead of me.

The laborious process of installing the metal drawers took about ten months to complete. Noise pollution and overcrowded hallways were part of each day for all the occupants of 3 West. Day after day, week after week, each wooden drawer was methodically removed and replaced with a new steel drawer. I did have a daily "break" from this where I would climb inside each emptied cardboard box that held the drawers and detach it from the pallet.

As the drawers were installed, the specimens were transferred to the new drawers where they would await later curation. In total, 9,900 new drawers were installed as about 5,000 wooden specimen drawers were carted away, ending their long and accomplished careers.

The next major phase of the project involves the complete re-curation of roughly 20,000 mollusk specimen trays. This stage has been quite overwhelming given the massive size of the collection - about 10-12 million specimens! (see Jul./Aug. issue for related story). Each specimen lot is being transferred from the wooden trays to acid-free, high-grade cardboard archival trays.

The guiding principle behind this project is aimed at eliminating the spread of Byne's Disease throughout the collection. Byne's occurs when acidic vapors are emitted by cellulose-based materials, mainly wood (one of the worst being oak). The vapors attack the calcium carbonate of the shells. This reaction can produce a white, powdery dust most easily observed on mollusks stored in glass vials. Therefore, all or most of the wood used in storing the collections (including drawers, trays and header blocks) must be removed in order to prevent further degradation of the specimens.

As the project has continued, the curation of the mollusks has been adjusted to meet the needs of the collection. These changes have revolved around issues of user-friendliness, aesthetic quality and the budgetary constraints associated with using large amounts of archival quality materi-

continued on page 6

COLLECTIONS CONT.

als. One of the major changes we have introduced is the use of archival grade Coroplast to fill the empty spaces within each tray. The Coroplast is easily cut to size and placed within the tray securing the specimen lots in place and preventing them from sliding and rocking. In addition, each tray has been set up to allow for future expansion, and is fitted with new family and sub-family heading labels. At this point, roughly two-thirds of the collections have been re-curated.

The final phase of the project, which is partially underway, involves moving and decompressing the collections and placing drawers in their proper case in accordance with the collection plan designed by former project supervisor Lisa Whiteman (now back home in her native Jamaica). The plan has been set up to allow for expansion throughout the collection and further re-organizing will need to be completed in order for the collection to conform to current classification systems. A label database will be completed in order to generate both case and individual drawer labels. Finally, the quarter units and drawers will be outfitted with the new labels.

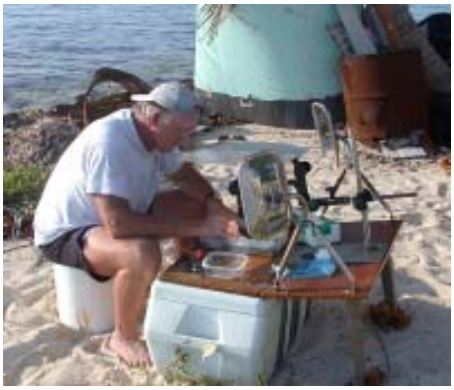
This immense project is right on track for completion by July of 2003. The staff of the Mollusk section has been extremely patient and understanding given the upheaval caused by this huge undertaking. It is my hope that through this project the collection will be user-friendly, visually pleasing and well prepared for preservation into the future.

TRAVEL

Jumping Hermit Crab Siting at CBC!

Rafael (Rafa) Lemaitre visited the Caribbean Coral Reef Ecosystem (CCRE) field station at Carrie Bow Cay (CBC), Belize, from 15-24 October 2002 with IZ Research Associate **Darryl L. Felder** (Department of Biology, University of Louisiana, Lafayette). Two Ph.D. graduate students, Rafael Robles (another Rafa) and Joel Stake, also participated. A colleague from Brazil, Fernando L. M. Mantelatto, (Departamento de Biologia, Universidade de Sao Paulo) was to also join the team, but was unfortunately turned back by Belize immigration for lack of a visa. The collecting trip is part of a research entitled, "Diversity of decapod crustaceans from Twin Cays, Pelican Cays, Carrie Bow Cay and adjacent intertidal to shallow subtidal waters".

Darryl had visited CBC in 1983 with the late **Ray Manning**, whereas Rafa had amazingly never worked there. This trip to CBC was intended primarily to follow up and complete studies initiated two decades ago, and to produce a checklist of decapods from CBC and Twin Cays. A priority was to find fresh alcohol-preserved specimens for mtDNA studies in order to solve a number of systematic problems. The study also is intended to complete surveys of decapod crustaceans from the Twin Cays area for a subsequent color field guide to the common species.



Darryl L. Felder at CBC using his custom-made photographing machine which consists of a modified Igloo cooler and some odd items including pick-up truck side rear-view mirrors. *(Photo by Rafael Lemaitre)*

Rafa reports that the expedition was a success in many ways. Not only did the team collect a substantial number of interesting specimens, but Rafa reports that he was able to find some rare "jumping" hermit crab species in which the males have sexual tubes. He had been looking for those species for years at Fort Pierce, Florida, with little luck, and he found them (all were laughing at him, he says) at South Water Cay, just yards away from the CCRE station. Rafa was very impressed with the field station, and had a few suggestions for **Klaus Ruetzler**, CCRE director:

1. a tennis court is badly needed;

2. each coconut tree needs a safety net (they fall frequently, and one missed me by 3 feet!);

3. the outhouse needs music;

4. and if you could sell "1 Barrel" rum, you could fund the station without asking for any money!!

OUTREACH

A Greek Odyssey

Chris Tudge

Two important meetings of the carcinological community occurred in September 2002 within the borders of Greece in the beautiful Mediterranean Sea. The first was the **8th meeting of the Colloquium Crustacea Decapoda Mediterranea (8th CCDM)** on the Island of Corfu, and the second was the **Sixth International Congress for Systematic and Evolutionary Biology (ICSEB VI)** in Patras.

Colloquium Crustacea Decapoda Mediterranea

The **8th CCDM**, held 2-6 September 2002, was ably organized by the National and Kapodistrian University of Athens at the Ionian University in the Municipality of Corfu, the largest of the Ionian Islands. The location was the historic Ionian Academy building. The views from the windows and balconies overlooked the harbor, the blue Mediterranean Sea, and the famous old Venetian Fortress.

A cozy gathering with less than 100 active participants and no parallel sessions over the 5 days. This size, organization, and venue facilitated much energetic discussion between most of those present. The meeting presented 64 oral presentations and 78 posters on systematics, phylogeny, genetics, ethology, morphology, biogeography, reproduction, fisheries, ecology, and physiology of decapod crabs, including a special session on deep-sea shrimp and a round table discussion of a cooperative proposal for sharing information of decapod crustaceans. Although this meeting is on Mediterranean decapod research, carcinologists of all inclinations and nationalities are encouraged to attend. This makes for a varied scientific program; researchers from 27 countries attended, two thirds of which do not border the Mediterranean Sea.

Invertebrate Zoology was represented by **Chris Tudge**, IZ Research Associate and Assistant Professor, American University, as presenter of a co-authored paper on hermit crab sexual tubes with **Rafael Lemaitre**, **Katie Schneider**, and **Shuhb Sharma** (the latter two are interns from American University), and **Darryl L. Felder** (IZ Research Associate, University of Louisiana), who gave a plenary lecture and co-authored seven other papers with students and colleagues.

Sixth International Congress for Systematic and Evolutionary Biology

The **ICSEB VI** was held at Patras University, Patras, Greece, from 9-16 September 2002. Subtitled, "Biodiversity in the Information Age" the meeting was organized under the auspices of the International Organization for Systematic and Evolutionary Biology (IOSEB). It was a large, truly international meeting with 29 independent symposia (also a round table discussion and a workshop). Topics ranged from morphometrics, phylogenetics, phylogenetic nomenclature and theory, to global biodiversity and conservation, as well as symposia devoted to particular taxa including butterflies, arctic and alpine plants, land snails, and crustaceans.

Chris Tudge, representing IZ, coordinated and chaired the crustacean symposium entitled, "Patterns and Processes in Crustacean Evolution". It was one of the largest symposia at the meeting in terms of participating scientists, with 15 presenters from 8 countries in three sessions on separate days. Audience attendance was great (~130 total) considering the stiff competition from sometimes up to 5 parallel sessions. The range of crustacean topics and taxa covered by the symposium was impressive with presented papers and two posters discussing phylogenetics (morphological & molecular), environmental impacts on morphology, segmentation, morphometrics, neurobiology, and behavior.

The crustacean evolution symposium was complimented by an additional crustacean symposium devoted to the Order Stomatopoda, organized and chaired by Marjorie Reaka-Kudla (University of Maryland). Many of our participants and audience were shared, but this focused meeting presented unique insights into the group and stimulated much discussion.

IZ was further represented by **Darryl L. Felder** who co-authored a paper with his student Rafael Robles, and **Mary Mickevich** (NMFS) who presented in an incongruence and phylogenetic theory symposium, and who also organized and coordinated all the submitted symposia.

OUTREACH CONT.

Biodiversity in the Information Age (ICSEB VI)

Mary Mickevich (NMNF)

In the past year and a half I have been engaged in developing the international scientific program for ICSEB-VI. In doing so, I considered several prime issues which have stimulated the scientific community to shift emphasis in their work. These are revolutions in informatics and molecular techniques, and the global biodiversity crises. No group of scientists are more capable to meet the challenges presented by this crises than systematic and evolutionary biologists. They can organize and gather the best information for international and national policy. To this end, large national and international bioinformatics projects have been formed through individual and cooperative efforts. Because of the revolution in computational abilities and molecular techniques, the last decade has seen changes in evolutionary theory and major breakthroughs in our knowledge of the Tree of Life. Also, unique applications of these techniques have lead to a new approach: Evolutionary Development or Evo-Devo.

The symposia were organized to represent these shifts. The general areas covered: Information in Evolution, Information and Evolutionary Development, Information and Issues involved in Deciphering the Tree of Life, Biodiversity Informatics and Conservation, and, Exemplar Stems on the Tree of Life. The latter symposium concentrated on groups of organisms specifically chosen to be exemplars of the shifts in our science.

There were 30 symposia and each contained a unique focus of the theme. Invertebrate Zoology, as well as the Department of Systematic Biology was strongly represented. If you wish to see a list of the symposia and the speakers please go to **http://www.icseb-vi.biology.upatras.gr/**. Without the participation of my colleagues in the Department of Systematic Biology, Invertebrate Zoology, the program would have been incomplete and not as excellent. I thank you! With this program I competed for and was awarded an NSF grant to support travel for all US participants who were not employed by the Federal Government. **Scott Miller**, chair of the Department of Systematic Biology, came to the rescue and funded those SI scientists who were not covered by this grant. Thank you, Scott!

Malacology Meetings

Jerry Harasewych attended the 68th annual meeting of the American Malacological Society in Charleston, South Carolina on August 3-7, 2002. He co-authored the following papers, based in part on work in his laboratory:

Wise, J., **Harasewych, M.G.** & Dillon, R.T. CO I, allozyme and morphological survey of the sinistral *Busycon* of North America.

Frias-Martins, A.M. & **Harasewych, M. G**. Phylogeny of the Ellobiidae.

McArthur, A.G., **Harasewych, M.G.**, Bieler, R., Colgan, D., Collins, T.M., Healy, J., Haszprunar, G., Kurabashi, A., Lindberg, D.R., Pacocha, S., Ponder, W.F., Rawlings, T.A., Strong, E.E., Tillier, S. & Ueshima, R. Multidisciplinary Examinations of Gastropod Phylogeny.

Jerry also co-authored a paper with Nestor Ardila entitled, 'Cocculinid and pseudococculinid limpets collected by the expeditions INVEMAR-MACROFAUNA I and II from the Colombian Caribbean (20-500 M), with one rediscovered species'. The paper was presented June 30- July 4, 2002 at the Fifth Latin-American Congress of Malacology in Sao Paulo, Brazil.

LIBRARY

INVERTEBRATE ZOOLOGY LIBRARIES NEW TITLES

Baron-Szabo, Rosemarie C. **Scleractinian Corals of the Cretaceous**. Knoxville: C. Baron-Szabo, 2002. QE778.B37 2002 Invz

Filmer, R.M. **A Catalogue of Nomenclature and Taxonomy in the Living Conidae 1758-1998**. Leiden: Backhuys Publishers, 2001. QL430.5.C75F55 2001 Moll

Kennedy, M.W. and W. Harnett, eds. **Parasitic Nematodes: Molecular Biology, Biochemistry and Immunology**. Wallingford, Oxon, UK: CABI Publishing, 2001. QL391.N5P37 2001X Invz

Meisch, Claude. **Crustacea: Ostracoda** (alternate title = **Freshwater Ostracoda of Western and Central Europe**). Heidelburg: Spektrum Akademischer Verlag, 2000. QL444.O8.M61 2000 Invz

Continued on page 13

VISITORS

Richard E. Young, University of Hawaii (1/10-11/26) conducted research on evolution and systematics of cephalopods. Sponsors: **Clyde Roper** and **Mike Vecchione**

Joana Zanol, George Washington University (8/5/2002-8/5/2007) is a Ph.D. student working on eunicid polychaetes. Sponsor: **Kristian Fauchald**

Juan Sanchez, State University of New York (SUNY), Buffalo, NY (10/2/2002-9/30/2003) is a Postdoctoral fellow doing research on octocorals. Sponsor: **Steve Cairns**

Dr. Regina Wetzer, Natural History Museum of Los Angeles County, CA (10/3-10/5) came to the scan collection for isopod types and collections in conjunction with an NSF grant. Sponsor: **Marilyn Schotte**

Angelique Corthals, American Museum of Natural History, NY, The Ambrose Monell Collection for Molecular and Microbial Research (10/8-10/8) came to learn about methods for estimating collection processing costs. Sponsor: **Cheryl Bright**

Baldomera Olivera, University of Utah, Department of Biology, Salt Lake City, UT (10/18-10/18) visited to study mollusk collections and donate three paratype specimens from the family Turridae. Sponsor: **Jerry Harasewych**

Pauley Gustav, Florida Museum of Natural History, Gainsville, FL (10/21-10/25) came to conduct research on Turbinidae and Bivalvia. Sponsor: **Jerry Harasewych**

Russel Barsh, Center for the Study of Coast Salish Environments (Samish Indian Nation), Anacortes (10/24-10/24) came to view IZ and Fishes holdings from the NorthWest Boundary Survey (Kennerly specimens). Sponsors: **Cheryl Bright** and Susan Jewett (VZ)

Danya Atiyeh, Kira Bonomo, Dale George, W.T. Woodson High School, Fairfax, VA (11/4-11/4) visited to obtain digital photographs of shells from the dry mollusk collections for a science project. Sponsor**: Jerry Harasewych**

Dr. Csaba Csuzdi,Hungarian Natural History Museum, Budapest, and Dr. Katalin Szlavecz, Johns Hopkins University (11/5-11/6) visited the Lumbricid and Glossoscolecid Oligochaete collections at the NHB and MSC. They are working on describing a new species of earthworm from Maryland. Sponsors: **Linda Cole** and **Bill Moser**

Patrick Gillevet and Masomeh Sikaroodi, George Mason University, Manassas, VA (11/7-11/7) visited to conduct research on marine gastropods. Sponsor: **Jerry Harasewych**

Roger Toma, Ohio EPA, Twinsburg, OH (11/8-11/8) came to look at various species of crayfish and find characteristics to distinguish them. Sponsor: **Karen Reed**

Stephen Grabe, Environmental Protection Commission of Hillsborough County- Water Management Division, Sediment Monitoring & Assessment Section, Tampa, FL (11/10-11/10) came to use the Crustacea Library Reprint Holdings. Sponsor**: Lou Kornicker**

Continued on page 12

PUBLICATIONS

Amaral, F.D., M.K. Broadhurst, **S.D. Cairns** and E. Schlenz. 2002. Skeletal morphometry of *Millepora* occurring in Brazil, including a previously undescribed species. Proceedings of the Biological Society of Washington 115(3):681-695.

Crandall, F.B. and **J.L. Norenburg.** 2002. Checklist of the nemertean fauna of the United States. http://www.nemertes.si.edu,36pp.

Harasewych, M.G. 2002. Pleurotomarioidean Gastropods. Advances in Marine Biology 42:235-292, color plates 5,6.

Harasewych, M.G. 2002. Pleurotomarioidean Gastropods. Advances in Marine Biology 42:237-294.

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NEW FACES

Juan Sanchez, Ph.D., Marine Biologist

Postdoctoral Fellow

My hometown is Bogotá, but I've also lived several years on the Caribbean coast of Colombia where I've done most of my past research. I've been interested in modular colonial organisms, particularly marine invertebrates such as corals, gorgonians (octocorals) and hydroids. My past interests ranged from community/population ecology to phylogenetics of modular organisms. I did my Ph.D. dissertation thesis on the dynamics and evolution of branching pattern in modular organisms using octocorals as study systems (2002, University at Buffalo, SUNY, Dr. Howard Lasker, advisor).

Juan Sanchez *(Photo by Yolanda Villacampa)*

Branching patterns, or tree-like forms, are everywhere in nature: river basins, organ vessels, trees, fungi, algae, hydroids, and corals, just to mention a few. Most organisms on earth contain branching networks. Still, regardless of the recurrence of this pattern in multiple species and levels of organization, we do not clearly know how this pattern forms or evolves. The ultimate goal of my dissertation was to develop a model that explains how branching pattern forms and evolves in modular organisms. My study included theoretical and mathematical models on branching, several molecular phylogenies of octocorals, and comparative analyses on the evolution of branching pattern to explore traits association (phenotypic integration) and heterochrony.

Having studied the phylogeny and evolution of gorgonian octocorals for many years, I started to get very interested in their systematics and diversity. Species distinctions among species are difficult and the levels of plasticity among the traits, often considered diagnostic for species identification, are uncertain. Consequently, my post-doctoral project at the Smithsonian Institution focuses on the phylogeny and diversity of octocorals from Caribbean reefs in order to clarify species relationships and distinctions. This project uses molecular phylogenetics to understand the genealogy and diversity of octocorals from Caribbean reefs. It explores octocoral phylogeny at two different levels: (1) Phylogenetic relationships among families and genera from four octocoral suborders and (2) Species phylogenetics and differentiation among closely related species complex. The species differentiation will be used as evidence for new species descriptions and comparisons.

This project will also allow me to get new answers on branching pattern evolution in octocorals. It will have a combination of molecular and morphological analyses and I had the fortune to collaborate with Smithsonian supervisors fluent in those two "languages": Dr. Liz Zimmer and **Dr. Steve Cairns** respectively. The museum has excellent facilities and laboratories that will make the accomplishment of this important project straightforward.

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NEW FACES

Eduardo Suárez-Morales, Ph.D. and Rebeca Gasca, Ph.D.

We are researchers on sabbatical from El Colegio de la Frontera Sur (ECOSUR) in Chetumal, Mexico, working at the NMNH in Invertebrate Zoology for a year (September 2002 – September 2003). ECOSUR is the largest national research institute of southeastern Mexico extending research to regions of Central America and the Caribbean. We have been studying the freshwater, coastal, reef, and oceanic zooplankton in these areas for nearly 15 years. Most of our work requires a strong taxonomic effort because several groups remain unstudied in these ecosystems.

About two years ago we began planning our first sabbatical in 15-years. We were seeking a prestigious institution that could accommodate both of our research interests in invertebrate zoology. We found this at the National Museum of Natural History.

Wishing to begin our sabbatical in September 2002, we had to move quickly and efficiently to secure the financial support we needed. We initially contacted **Dr. Frank Ferrari** to find out if the museum would accept two visiting tropical Mexican taxonomists; Dr. Ferrari has sponsored one of us (ES-M) on several occasions. Soon we began to send him a constant flow of project ideas/titles, signature requests, and urgent messages so we could keep our hope for a financial support alive. **Dr. Kristian Fauchald**, at the time chairman of the Department of Invertebrate Zoology, gave us enthusiastic support, as well as additional relevant letters to complete our documents. Eventually, we both received a sabbatical research grant from the Mexican National Council for Science and Technology (CONACYT). Realizing the high expenses of living in the Washington, D.C. area, however, we knew we would need additional financial aid, so one of us (ES-M) applied for and received a Fulbright Research Grant (with Dr. Ferrari's support). After sending numerous e-mails, acquiring and sending an endless number of official documents (including securing visas), and a few interviews, we were set to leave.

Eduardo Suárez-Morales and Rebeca Gasca (Photo by Yolanda Villacampa)

While at the NMNH Rebeca will work on the hyperiid amphipod fauna of the Gulf of Mexico and the Mexican Caribbean Sea, two areas in which these pelagic crustaceans are poorly known. She has been working with the hyperiids now for about 5 years after 15 years of studying their free transportation and major food source, the siphonophores. She will be spending some of her research time at the MSC examining zooplankton samples from the northwestern tropical Atlantic. Many such samples remain untouched. Rebeca also plans to revise the identity of specimens she brought from Mexico using the impressive biological collection and documents left by the late **Dr. Thomas E. Bowman**.

Eduardo will work on several initiatives at the NMNH. One of which is related to the historical biogeography of the freshwater copepods of the Yucatan Peninsula, an area with an interesting geological composition that is hypothesized to favor vicariant processes. Another project involves a revision of the type specimens of the copepod Order Monstrilloida deposited in NMNH-IZ Crustacea Collections. Most species will have to be redescribed and the taxonomic status of some may change. This particular initiative was accepted to receive an Ernst Mayr Grant from Harvard University. Another endeavor while at NMNH is to describe and evaluate the developmental stages of 1 of 4 species in the copepod Family Thespesiopsyllidae; with a number of peculiar characteristics, this group may well represent a new order of the Copepoda.

VISITORS CONT.

Sheila Patek, Miller Postdoctoral Fellow, University of California, Department of Integrative Biology, Berkeley, CA (11/14-11/15) visited to look at stomatopod specimens. Sponsor: **Karen Reed**

Alan Kabat, former post-doctoral fellow, Washington D.C. (11/15-11/15) examined specimens of Naticidae (Gastropoda) and worked in the Mollusk Library. Sponsor: **Jerry Harasewych**

Dr. Ellen Strong, University of Minnesota, Bell Museum of Natural History, St. Paul, MN (11/18-11/22) collaborated with Jerry Harasewych on the research of heteropods. Sponsor: **Jerry Harasewych**

Anja Schulze, Harvard University, Cambridge, MA (11/18-11/29) came to study polychaetes collected in Micronesia during her post-doctoral fellowship in IZ; she will co-author a report with Dr. Fauchald, including a preliminary molecular analysis of the relationship among Palolo specimens. The Palolo's are famous for their swarming and their presence on most coral atolls. Sponsor: **Kristian Fauchald**

Dennis Opresko, Oak Ridge National Lab, Oak Ridge, TN (11/18-11/29) came to study antipatharians. Sponsor: **Steve Cairns**

Dr. Elena Markhaseva, senior scientist, Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (11/18-12/3) consulted with Frank Ferrari (at MSC) on the taxonomy of species of calanoid copepods from the Sargasso Sea Bermuda Atlantic-Time-Series in framework of grant "Diel, Seasonal, and Interannual Patterns on Zooplankton and Micronekton Species Composition in the Subtropical Atlantic (from Census of Marine Life). Dr. Markhaseva worked with Dr. Ferrari on taxonomic studies of undescribed species of benthopelagic calanoid copepods belonging to the genus *Tharybis*. Sponsor: **Frank Ferrari**

Mark Grygier, Lake Biwa Museum, Kusatsu, Japan (11/19-12/2) came to do research on branchiopod limb development. Sponsor: **Frank Ferrari**

Susan Spark, George Washington University, Washington DC (11/19-11/24) visited to examine and photograph the USNM holdings of ophiuroids as well as consult with Cindy Ahearn and Dave Pawson on collaborative projects. Sponsor: **Cindy Ahearn**

Dr. Regina Wetzer, Natural History Museum of Los Angeles County, CA and Dr. Niel Bruce, National Institute of Water and Atmospheric Research, Wellington, New Zealand (11/25-11/29) visited the crustacea collections. They received funding from an NSF grant to revise the genera and phylogeny of the isopod family Sphaeromatidae. Sponsors: **Brian Kensley** and **Marilyn Schotte**

Mark O'Loughlin, Parade College, Bundoora, Australia (11/30-12/23) is here to conduct research on Holothurians (Echinodermata). Sponsor: **Cindy Ahearn**

James Wood, National Research Center for Cephalopods, University of Texas Medical Branch, Galveston, TX (12/2-12/2) visited to photograph Argonaut shells from the dry mollusk collection. Sponsor: **Jerry Harasewych**

Richard Mooi, California Academy of Sciences, San Francisco, CA (12/4-12/6) worked on fibulariids. Sponsor: **Dave Pawson**

Niel Cumberlidge, Northern Michigan University, Marquette, MI (12/6-

Continued on page 14

PUBLICATIONS CONT.

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Pawson, D.L. and A.M. Kerr. 2001. Chitin in echinoderms? Tentacle sheaths in the deep-sea holothurian *Ceraplectana trachyderma* (Hoilothuroidea: Molpadiida). Gulf of Mexico Science 19(2):192.

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Walter, T.C., S. Ohtsuka, S. Putchakarn, K. Pinkaew and S. Chullasorn. 2002. Redescription of two species of *Pseudodiaptomus* from Asia and Australia (Crustacea: Copepoda: Calanoida: Pseudodiaptomidae) with discussion of the female genital structure and zoogeography of Indo-west Pacific species. Proceedings of the Biological Society of Washington 115(3):650-669.

OUTREACH CONT.

Science Project

Students with Yolanda Villacampa, selecting shells to photograph. (Photo by Jerry Harasewych)

Danya Atiyeh, Kira Bonomo and Dale George from W.T. Woodson High School in Fairfax, VA, visited the Mollusk Dry Collections to obtain photographs of shells for a science project. Shells from different families were used to find out if a model of shell growth using the Fibonacci sequence would apply to different species. **Jerry Harasewych** and **Yolanda Villacampa** assisted with photography.

CBC Sponges in Italy

Klaus Ruetzler, Michelle Nestlerode and **Molly Ryan** attended the 6th International Sponge Conference in Rapallo (Genoa), Italy, 29 September – 5 October 2002. Klaus gave the keynote address for the section on Community Structure and Ecology entitled, 'Sponges on coral reefs: A community shaped by competitive cooperation'.

Common yellow tube sponge (*Aplysina fistularis*) *on the Belize barrier reef; K. Ruetzler in the background.* (Photo by K. Sandved)

LIBRARY CONT.

Purcell, J.E. et al, eds. **Jellyfish Blooms: Ecological and Societal Importance. Proceedings of the International Conference on Jellyfish Blooms, held in Gulf Shores, Alabama, 12-14 January 2000.** Developments in Hydrobiology 155. Dordrecht: Kluwer Academic Publishers, 2001. QL377.S4J48 2001X Invz

Schuchert, Peter. **Hydroids of Greenland and Iceland (Cnidaria, Hydrozoa)**. Meddelelser om Gronland, Bioscience 53. Copenhagen: Danish Polar Center, 2001. QL377.H9.S34 2001 Invz

Williams, Geoff. **A Taxonomic and Biogeographic Review of the Invertebrates of the Central Eastern Rainforest Reserves of Australia (CERRA) World Heritage Area, and Adjacent Regions**. Technical Reports, No. 16. Sydney: Australian Museum, 2002. qQL365.54.W55 2002 Invz

IN COMMEMORATION

Dr. Glenn Goodfriend

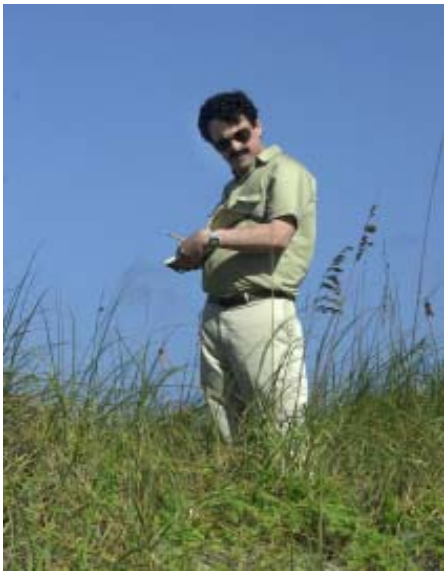
Dr. Glenn Allan Goodfriend, 51, research professor in the Earth and Environmental Sciences Department at George Washington University, died October 15, at GWU Hospital. He had pneumonia and complications from a systemic fungal disease, rhinocerebral mucormycosis.

Dr. Goodfriend, whose studies included land snail ecology, had been a frequent visitor to the NMNH. He developed a technique that allowed accurate dating of shelled organisms using assays of amino acid racemization.

He collaborated with **Dr. Jerry Harasewych** on a variety of projects, including studies on the longevity and age structure of deep-sea mollusk populations. More recently, Dr. Goodfriend, along with the late Prof. Stephen J. Gould, and **Dr. Harasewych**, received an NSF grant to study population structure and evolutionary rates of *Cerion* snails from Long Island, Bahamas.

Dr. Goodfriend joined the research faculty at George Washington University in 1998. He was a Research Associate at the Carnegie Institution Geophysical Laboratory in Washington from 1988-1998 and was a research scientist at the Weizmann Institute, Rehovot, Israel, in the 1980's.

In 1973, he graduated from the University of Rhode Island with a bachelor's degree in zoology. Glenn obtained his M. S. in Biology from the University of Chicago and his Ph. D. in Biology from the University of Florida. Dr. Goodfriend published over 40 papers in a variety of fields.



Glenn Goodfriend in Long Island, Bahamas. (Photo by Jerry Harasewych)

VISITORS CONT.

12/9) is visiting to continue to collaborate on systematics of African freshwater crabs. Sponsor: **Richard Sternberg**

Arthur Clark, Ecosearch, Inc., President, Portland, TX (12/2-12/4) visited the Mollusk collections to confirm the identifications of freshwater mollusks from Colorado. Dr. Clark is a former SI Associate Curator of Mollusks at the NMNH (1977-81). Sponsor: **Bob Hershler**

NEXT ISSUE

FEBRUARY

The February issue will be produced by **Barbara Littman** and **Karen Reed**. Please submit ideas and stories to them via e-mail by Friday, January 24, 2003. No Bones is distributed to all IZ staff electronically. Those on our distribution list who wish to receive it electronically should send this request to the editor.

ANNOUNCEMENTS

Dr. Mary Rice Honored

"Life Histories of Marine Invertebrates, a Symposium in Honor of Mary Rice" was held on 14-15 November 2002 at the Smithsonian Marine Station at Fort Pierce, Florida, honoring the life-long work of **Dr. Mary Rice**. Attendees from Invertebrate Zoology included: **Dave Pawson, Clyde Roper, Jerry Harasewych, Jon Norenburg**, as well as students **Megan Schwartz, Sveta Maslakova** and **Rebecca Ritger**.

Welcome Laura Si Lin Tudge!

The proud new parents with baby Laura.
(Photo by Rafael Lemaitre)

Chris Tudge and wife Karen Mudar officially welcomed their daughter on Sunday, October 20, 2002. She was born in Kunming, Yunnan Province, SW China, on November 12, 2001. The new family spent a week getting acquainted while taking walking tours of Laura's hometown of Kunming, seeing as how she had never been out of the orphange before. They had to then travel to Guangzhou (old Canton) to obtain her visa for the US, spending 4 days there with lots of other adopting couples and their kids. Laura arrived on US soil on November 1, 2002. She is an angel and is settling in very well. She already loves crabs.

AAAS Fellows Elected

The Council of the American Association of the Advancement of Science has elected the following IZ researchers for being elected AAAS Fellows:

Steve Cairns, "for outstanding scholarly publications that have significantly advanced the knowledge of the evolutionary relationships, taxonomy, and biogeographic distributions of corals, for service to the profession by curating the collections of corals and other cnidarians in the USNM, and for mentoring and training young systematists."

Jerry Harasewych, honored for his "distinguished contributions toward understanding the phylogeny and molecular evolution of gastropods."

Rafael Lemaitre, elected for "outstanding scholarly publications that have significantly advanced the knowledge of evolutionary relationships and taxonomy of crustaceans, for curating the crustacean collections of the US National Museum, and for providing services to the international systematics community…."

Jon Norenburg, honored for "distinguished work in determining the evolution and diversification of the Phylum Nemertea."

Congratulations!