



NO BONES NEWSLETTER

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Rafael Lemaitre traveled to Paris to work at the Museum national d'Histoire naturelle (MNHN), from July 26 to August 31. He has been studying for several years the extensive collections of deep-water hermit crabs, especially those of the family Parapaguridae, obtained by various French campaigns over the last decade all across the Indo-Pacific region. This trip was intended primarily to look at specimens recently brought from cruises in the Marquesas and Austral Islands in French Polynesia. These collections are remarkable by their species richness and abundance of specimens. The specimens are accompanied by detailed station and habitat data, and often color photographs of specimens. Rafael has already published several papers reviewing various parapagurid genera based largely on this material, but more are in preparation. New species continue to be discovered, such as the oddly colored *Paragiopagurus* new species. Rafael reports that he has yet to describe 10 more parapagurids, including the first known species of hermit crab to be associated with a

Hot Time in Paris

Rafael Lemaitre



Paragiopagurus (new species)
(Photo by L. Albenga)

hydrothermal vent, discovered off Taiwan.

During his stay in Paris, he worked at the famous attic lab provided by the equally famous "chercheur" (researcher) Alain Crosnier. The attic lab was very busy this summer, even under the harsh, infernal conditions caused by the August heat wave that hit France, known as the "canicule", and which killed more than 15,000 in that country. The temperature in the air-

conditionless attic lab reached 40°C or 104°F!!! Rafael shared this hot lab with colleagues from Japan (Keiji Baba and Ken-Ichi Hayashi), Spain (Enrique Macpherson), France (Michel Segonzac), U.K. (Paul Clark.), and the U.S.A. (Peter Castro), all of which became members of a newly founded organization called the "Canicule Club".



Keiji Baba, Rafael Lemaitre, Ken-Ichi Hayashi
(Photo by MNHN staff)

P O I N T O F V I E W

Procrastination Has Its Virtues***Dave Pawson***

In 1989, we were making dives near Barbados in the Caribbean, in a research submersible, to depths of about a half mile, in a study of sea stars, sea urchins and their relatives living on the muddy or rocky seabed. Most of the animals we were studying were large enough to be seen with the naked eye, and we could photograph and videotape them doing their thing on the sea floor.

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Sometimes we would use a suction device to slurp up some mud or sand in hopes of finding small species, or young stages of the larger animals. In one of these slurped samples from a depth of about 1,400 feet was a small transparent sea cucumber less than two inches long. Its bizarre shape and other characteristics led us to conclude that it was certainly new to science, representing a new family, genus and species. I have 'sat' on this single very rare specimen for the past 14 years, delaying publishing a scientific description of it, in the hope that we might return to the area, find some more specimens, and make a more comprehensive study. We haven't (yet?) returned to the area.

Very recently, Chris Pomory, a colleague in Florida, sent me a photograph taken at a depth of around 1,200 feet on the 'wall' at Grand Cayman by submersible operator

Gary Montemayor. The photo shows a beautiful, almost-transparent sea cucumber, with a cylindrical body and with its tubular feeding tentacles embedded in the muddy bottom. This is, without a doubt, the same new species that we captured near Barbados. The small whitish spots on the body are heaps of hundreds of microscopic 'bones' in the form of perfect little wheels. Unfortunately, the submersible was not equipped to collect the animal.

So, now that we have a specimen from Barbados AND a gorgeous photo of the species from Grand Cayman, we can go ahead with the scientific description, and make a much better job of it!

Which leads me to suggest a new aphorism: "What's worth doing is sometimes better done after a little procrastination".



*Unknown sea cucumber, new family, new genus, new species
(Photo by Gary Montemayor)*

O U T R E A C H

Lost in the Nation's Attic: Frontier Tales of an IZ Intern

Tristan M. Carland

What's a Nemertean? Do I get a desk? Will there be food? A few of my original questions after reading the project listing of **Jon Norenburg** titled "Do it with nemerteans". Listed were a wide variety of applicable skills, a few of which (marine invertebrates, computer programming, web site development) matched my own interests. What a tall guy! Jon's height was matched only by his all-encompassing project. It seemed to be the kind that could keep an intern busy for decades. We opted to focus on what I could foresee managing in ten weeks.

Thus, my time was spent working on a Nemertean mapping system that can display the distributions of known species on a world map. The system uses ArcIMS, the web spin-off of a popular mapping program around the museum called ArcView. It takes latitude-longitude data from the nemertean database and displays an interactive map on the nemertes website. Unfortunately,

ArcIMS requires either a Win2000 or UNIX machine. If you hadn't noticed, the worms are weird enough but the chief nemertinator and his web friends are Mac addicts! To deal with this additional hurdle, I created a new server that could host ArcIMS and a demo of the Nemertean Global Mapping System was ready to hit the web. To simulate the system's capability, data for all species of the Genus *Tubulanus* were used. Of course, first someone had to spend his first two

weeks with his nose in a file cabinet to retrieve this data, sustaining paper cuts from hundred-year old books in German and Russian.

Most of the distribution information available for *Tubulanus* can now be accessed at <http://nemertes.si.edu/mapping/>. This can be slow to load, still gets thrown off-line occasionally and significant



Tubulanus rhabdotus (Photo by Jon Norenburg)

help in the beauty department is in its future. I am now one of about 50 people in the world who knows what a nemertean is and, I hope, I made work for some of them a little easier. Nemerteans still may be weird but at least tubulanids can be very attractive. I also got a desk, with a view, but no food.

S P E C I A L R E P O R T

Dr. Yoshiaki Kikuchi of Ibaraki University in Japan visited **Frank Ferrari** on September 22 to deposit specimens of two species of harpacticoid copepods, *Moraria tsukubaensis* and *M. terrula*, that he described.

Yoshiaki is an avid mountain climber and is known worldwide for his descriptions of harpacticoid and cyclopoid copepods, often from extreme mountain environments. Perhaps his most famous discovery

was *Glaciella yalensis*, a genus of harpacticoid copepod from cryoconite pits on the upper surface of Yale Glacier in Nepal. The altitude of the glacier's upper surface is over 5,000 m.

Although now 62, Yoshiaki continues to climb. *Moraria tsukubaensis* and *M. terrula* are from snow-covered, moist leaf litter on mountains around Sapporo, the city of Yoshiaki's birth. In the mountains and far from any standing water, leaf

litter of broad-leaf deciduous trees retains a thin film of water from the snow-melt which provides the necessary aquatic habitat for these copepods. Timing is important because in the spring there is a deep snow cover over the leaf litter, while later in the year with little snow cover, the copepods enter dormancy and are not easy to collect. It is a great honor for the National Museum of Natural History to receive these specimens from this dedicated taxonomist and naturalist.

V I S I T O R S

Pat Jeveb, ICRAM (Italian NOAA), Italy (09/06 - 09/13) examined cephalopods. **Sponsor: Clyde Roper.**

Raphael Williams, Smithsonian Marine Lab, Fort Pierce, Florida (09/09 - 09/12) studied Western Atlantic octocorals and consult with Steve Cairns and Ted Bayer. **Sponsor: Steve Cairns.**

Jayne Brim Box, US Forest Service & Confederated Tribes of the Umatilla Indian Reservation, Utah (09/15-09/18) surveyed mollusks from Eastern Oregon streams to assess restoration of populations by Umatilla Indian Reservation. **Sponsor: Robert Hershler.**

Benoit Dayrat, Department of Invertebrate Zoology, California Academy of Sciences, Golden Gate Park, California (09/15- 09/19) examined nudibranch material of the genus *Discodoris* particularly the Eveline and Ernesto Marcus collections. **Sponsors: Jerry Harasewych, Linda Cole.**

Yoshiaki Kikuchi, Ibaraki University, Japan (09/18-09/25) worked on a new species of freshwater harpacticoid copepod. **Sponsor: Frank Ferrari.**

Kira Bonomo, W.T. Woodson High School, Virginia (09/23) photographed shells from the dry mollusk collection for a high school science project. **Sponsor: Jerry Harasewych.**

Crystel Kent (09/23-09/28) examined cephalopods. **Sponsor: Clyde Roper.**

Saskia Brix, Hamburg University, Germany (10/01-11/07) to study asellote isopods. **Sponsor: Marilyn Schotte.**

Hiroyuki Hayashi & Tadashi Kawai, Fisheries Extension Office, Hokkaido Government, Japan (09/22-09/25) worked in the crayfish collection and consulted the Crustacean library. **Sponsor: Rafael Lemaitre.**

Markus Böggemann, Department of Biology, University of Osnabrück, Germany (10/05-10/17) worked on identifying collections of goniadid polychaetes. **Sponsor: Kristian Fauchald.**

Tore Hoisaeter, Department of Fisheries and Marine Biology, University of Bergen, Norway (10/06-10/14) examined and photographed microgastropods in the mollusk collections. **Sponsor: Jerry Harasewych.**

Hiroshi Ueda, Ehime University, Japan (10/19-11/01) studied the convergence in thoracopods of calanoid copepods. **Sponsor: Frank Ferrari.**

Andre Reimann, Humboldt University, Germany (10/20-11/14) to examine anomuran and thalassinidean collections for foregut ossicles. **Sponsors: Rafael Lemaitre, Chris Tudge.**

Elena Krylova, Russian Academy of Sciences, P.P. Shirshov Institute of Oceanography, Russia (10/21-11/21) to work on Vesicomidae. **Sponsor: Jerry Harasewych.**

Guenter Schuster, Eastern Kentucky University, Kentucky (10/22-10/25) studied the crayfish collection. **Sponsor: Rafael Lemaitre.**

Christopher Taylor, Illinois Natural History Survey, Illinois (10/22-10/25) studied the crayfish collection. **Sponsor: Rafael Lemaitre.**

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ANNOUNCEMENTS

Ocean Genome Legacy Joins Forces With NMNH

Freshly collected sponge samples from Harrington Sound (Bermuda) being tagged by W. Sterrer (Photo by Klaus Ruetzler)

In an effort to promote biodiversity research and preservation, and provide valuable DNA records for systematic and evolutionary interpretation, **Klaus Ruetzler** formalized a collaboration with the Ocean Genome Legacy (OGL) foundation (Beverly, Mass.; Director Dr. Wolfgang Hess) and the Bermuda Natural History Museum (Flatts, Bermuda; Curator Dr. Wolfgang Sterrer). The principal objective at this stage is establishing a depository of sponge and associated microbial DNA from specimens collected in Bermuda and at the Smithsonian Carrie Bow Marine Field Station, Belize, with samples for morphological study kept at the National Museum of Natural History.

Sponges are a very old phylum of invertebrates and in scientific focus for their important role in most marine communities. Their ancient symbioses with bacteria, the primordial immune system, and unique metabolites that evolved to protect them from predation have proven to be a source of powerful novel compounds usable in biotechnology and pharmacology.

The first samples for analysis were collected and identified by Ruetzler and Sterrer in Bermuda last June and are now being analyzed at the OGL laboratory in Beverly.

VISITORS CONT.

Luiz Simone, Museu de Zoologia da Universidade de Sao Paulo, Brazil (10/23-10/24) to work in the Mollusk Type Collection. **Sponsor: Robert Hershler.**

Bradley Steven, NOAA, NMFS, Kodiak, Alaska (10/20) to work on the genus *Munidopsis*. **Sponsor: Rafael Lemaitre.**

LIBRARY

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T R A V E L

A Decapod Named ISABEL?*Rose Gulledge*

Rose Gulledge and **Karen Reed** visited the Smithsonian Marine Station (SMS), Fort Pierce, Florida, from 9-19 September to continue collecting specimens for the project, 'Inventory of decapod crustaceans from the Indian River Lagoon, and near-shore waters'. The project is headed by **Rafael Lemaitre**, research zoologist, along with collaborators **Darryl Felder** (research associate from University of Louisiana-Lafayette) and **Chris Tudge** (research associate from American University). To date approximately 750 lots and 200+ species of crustaceans have been collected from the Indian River Lagoon and near shore waters. Rose and Karen spent two weeks collecting decapods and anxiously following the track of Hurricane Isabel, which initially was headed for the east coast of Florida.

Even with the storm over a week away from landfall, Isabel was already creating rough seas, and high wind and surf, making offshore collecting difficult. Only one day proved safe enough to venture out into the Atlantic (well, safe enough for Rose to hold onto her breakfast while on board the R/V Sunburst!). Nevertheless, it was a very productive trip. Three different sites were sampled (one new) each with different bottoms, producing several brachyuran-rich dredge hauls. Of great interest were miniscule hermit crabs spotted on spines of sea urchins. According to Rafael Lemaitre, who specializes in anomurans, this occurrence has not been recorded before. Based on photographs, Rafael suspects the hermit crabs are *Pagurus*



Pagurus brevidactylus or *P. carolinensis*
(Photo by Rose Gulledge)

brevidactylus or *P. carolinensis*. Another treasure brought on board was a large loggerhead sponge that tore the new otter trawl net, and harbored a 'village' of snapping shrimps of the genus *Synalpheus*.



Synalpheus sp. (Photo Karen Reed)

With the weather hampering further offshore collecting, intertidal collecting was the alternative. High waters, however, compounded with rough surf, further limited collecting efforts. The few areas that were sampled produced some unusual finds. Using yabby pumps and sieves on the mud flats at Coon Island yielded a mud shrimp, *Upogebia affinis*, where alpheidids are typically found. It was a good-sized specimen, and intact (this is significant since yabby pumping requires smooth, even pressure so as not to eviscerate the

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T R A V E L CONT.



Upogebia affinis (Photo Karen Reed)

specimen). And without fail, a curious beachcomber will approach wondering about 'those steel tubes'. They can't believe those things are used to pull up 'bait'! Another exciting find came from crab pots set out at Little Jim's Bait Shop. A large male stone crab, *Menippe mercenaria*, with a carapace size > 16 cm, was captured. Given that this is such a common species in the region, it was donated to the Smithsonian Marine Ecosystem Exhibit in Fort Pierce for public display. High waters at Betty's Cove made sampling the sea wall impossible, but the thick mangrove roots below revealed their own treasures. At least eight adult blue land crabs, *Cardisoma guanhumi*, crawled out into plain view. Only a claw or an empty carapace of this species had been collected in the past, so this was certainly an unexpected and fortunate site.

Upon the recommendation of the project participants, the SMS recently acquired two 11-foot sea kayaks for near-shore and Indian

River fieldwork. Rose and Karen found the lightweight kayaks easy to maneuver and could accommodate basic collecting gear such as yabby pumps and sieves. The kayaks proved to be practical and economical sampling vehicles, that afford flexible collecting schedules without burdening SMS staff and budget.



Cardisoma guanhumi (Photo by Rose Gullede/Karen Reed)

The field trip was not as planned; however, from collecting woes came a few unexpected bonuses. And extra time spent examining and photographing fresh material revealed a number of different genera not often see alive. So although Hurricane Isabel had changed the initial field work schedule, her presence (and effects) culminated in finding a number of new Indian River decapod 'gems', but none named Isabel.



Smithsonian Marine Station new kayaks (Photo by Karen Reed)

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C O L L E C T I O N S

The Taxonomic Card Files in the Invertebrate Zoology Collection Scanning Pilot Project.

Linda Ward

How would you answer an information request such as: What are your holdings of *Serpula vermicularis* from the U.S. west coast? We can point people to the web version of our specimen catalog (www.mnh.si.edu/rc/db/collodb.html) but that won't help with the cataloged lots that have yet to be digitized. When we get requests like this for collections that have not been completely digitized, we have to resort to making lists or photo copying the 3x5 cards from the taxonomic card files. With the exception of the mollusk collection, the taxonomic card files provide information for all cataloged lots. This means you can go to the card files to see if we have lots that meet your needs before going into the collection to pull lots. It is particularly useful for tracking down specimens in the wet collection where you can have as many as fifty vials of specimens stored in one jar. We may end up photo copying the same cards several times to fill multiple data requests. Also, how do we deal with the card files when some of the Invertebrate Zoology staff relocate to POD 5?

Ideally we should have all of our catalog records completely digitized but this is a time consuming process. A solution would be to scan the cards for the collections that haven't been fully digitized and attach the images of the cards to a skeleton EMu catalog record. The skeleton record would contain at the minimum, catalog number and identification. The image of the card would be available for viewing both

in the live and web version of EMu but to scan cards with a flatbed scanner is also too time consuming to make it practical. Recently a PhD. student was interested in knowing the specific collecting sites of our holdings of two species of Crayfish collected from Michigan. She had found the records at the web site but there was no information on the river drainage which is very important in studies of crayfish distribution. As it turns out that information was on the cards but that and other information was not captured when they were cataloged. Likewise, many of the records for lots moved to MSC have only partial data entered. The crayfish question provided the pilot project to test the practicality of scanning the taxonomic cards and adding the images to the EMu records. A Hewlett Packard Scanjet model 5500c which has a feeder designed to handle stacks of up to fifty 3x5 or 4x6 photos was purchased for \$300. The scanner was able to handle the taxonomic cards with little problem and could be set up to scan while using the computer for other tasks. One just periodically needs to add more cards to the stack or deal with a jammed card but otherwise it can be left unattended, which would not be possible with a regular flatbed scanner. Fifty cards take 17-34 minutes to scan depending on jamming. After scanning the card one needs to rotate the image ninety degrees and rename the file from the automatically assigned sequential number to one that matches the catalog number.

While you can rotate large numbers of cards simultaneously you need to rename them one at a time and that can be fairly time consuming. The images were then appended to new EMu multimedia records which were then attached to the existing catalog record. In several cases, there was no catalog record so a skeleton record was created. It took about four days time to take more than 600 cards, scan, rotate, rename and attach them to catalog records. This is substantially less time than it would take to catalog the lots. To see examples look at Crustacean catalog numbers 22469 and 100780 in the live version of Emu. Double click the thumbnail of the card that appears either at the top of the screen or on the multi media tab.

Once the web version starts pulling from the live data, later this year, the cards will be visible to the public. Since the skeleton record with a card image does not allow user queries on locality or other data, it is not a permanent substitute for a complete, accurate, and properly formatted Emu catalog record. The advantage to scanning the cards and attaching them to EMu catalog records is that it makes the information more readily available at a much lower initial cost. The scanning could be done on-site or off site by a contractor. Full cataloging must be done where one has access to the Smithsonian Intranet in order to access EMu and it requires an understanding of our data standards so that data is put in the correct fields.