



Southern California Association of Marine Invertebrate Taxonomists

3720 Stephen White Drive
San Pedro, California 90731

June, 2002

SCAMIT Newsletter

Vol. 21, No. 2

SUBJECT:	Nereids
GUEST SPEAKER:	Discussion leader - Leslie Harris
DATE:	19 August 2002
TIME:	9:30 a.m. to 3:30 p. m.
LOCATION:	Los Angeles Museum of Natural History Worm Lab 900 Exposition Blvd.



Molgula regularis
City of San Diego
Photo by M. Lilly

The meeting was commenced by our new president, Kelvin Barwick at approximately 9:30 a.m. He started by thanking the 20th anniversary party committee (Leslie Harris, Ron Velarde, Cheryl Brantley and Ann Dalkey) for the wonderful job they did with organizing and coordinating the party. It was also requested that anyone who took pictures that evening, if they have extras, send them to Megan Lilly and she will include them in future newsletters to share with the greater SCAMIT membership. It was then announced by Kelvin that SCAMIT has a new list-server which is up and running thanks to Paul V. Scott of the Santa Barbara Museum of Natural History who is graciously hosting our list-server and our ever-fearless webmaster, Jay Shrake who will be handling the archiving. Further on in the newsletter is an announcement for the list-server and instructions on how to subscribe.

Rick Rowe informed us that “special” t-shirts, designed by himself and his wife Rae (an excellent and successful artist) could be available for purchase, but he won’t have them made until a certain number of orders are placed. I have seen the design, which consists of a drunken crab with a lampshade on his head and a reference to 70% ethanol (don’t want to spoil the surprise) and it is quite hilarious as well as being beautifully drawn. If anyone is interested in receiving a t-shirt with this design, please contact Megan Lilly and let her know. If enough orders are placed, we may have a batch made.

Larry Lovell then had the floor to announce that the 2002 Ichthyology/Herpetology meetings will be held in Kansas City this year in the first week of July. He also stated that at the recent SCAS meetings he met Julie Kalman who is working on parasitic copepods and would be willing to look at some that we are encountering, especially those found on our *Mediomastus polychaetes*. Julie can be reached at SCCWRP, where she is currently working.

Rick Rowe then brought up the issue of trying to get SCAMIT and PEET funded researchers together. This idea was originally suggested by Meg Daly at the January Anthozoan meeting. SCAMIT would love to have a PEET grantee come to one of our meetings and tell us more about the PEET program as well as whatever specific topic they are researching. Please contact any of the officers if you are currently working under a PEET grant and would be willing to attend a SCAMIT meeting.

Don announced that the California and World Oceans Conference ‘02 will be in Santa Barbara this year and runs from October 27-30. Interested parties can get the necessary information at

http://resources.ca.gov/ocean/CWO_02/Call_index.html

With the business portion of the meeting completed it was time for the Ascidian lecture. Megan Lilly started with an overview of ascidian anatomy and proper dissection technique. She then showed digital images of various structures to be examined, such as the dorsal lamina, stigmata (spiral or straight), and branchial tentacles (branched or simple). She reviewed some of the species found in the City of San Diego’s monitoring programs, such as, *Cnemidocarpa rhizopus*, *Agnezia septentrionalis*, *Molgula regularis*, *Molgula* sp SD 1, *Molgula pugetiensis*, and *Molgula napiformis*. Species sampled in San Diego Bay during the B’98 regional program were also examined: *Microcosmus exasperatus*, *Styela plicata*, and *Ciona* sp (she did not speciate the *Ciona* specimens as they were all being examined after being fixed in formalin and any necessary color spots, etc, were unavailable). Some of the literature she uses for ascidian ID work is, The North and South American Ascidiaceae Van Name 1945, Three New Species of Stolidobranch Ascidiaceae (Chordata: Ascidiaceae) from the California Continental Shelf Lambert 1993, and The Ascidiaceae *Styela barnharti*, *S. plicata*, *S. clava*, and *S. montereyensis* in California waters Abbott et al 1972. However, this is just a small sampling of the available literature and a visit to the Ascidian website is also recommended:

<http://nsm.fullerton.edu/~lamberts/ascidian/>

She will be eventually making voucher sheets based on the power point presentation given that day. Contact her if you wish to receive copies.

CORRECTION

There was an error in the spelling of a polychaete genus in the minutes of last month’s newsletter. Please correct *Spinoferra* to its proper spelling of *Spinosphaera*. Thanks to Rick Rowe (CSD) for catching this.

- (M. Lilly)



MEDIC ALERT!

George Davis, Collections Manager of the Crustacea Section of the Natural History Museum of Los Angeles County and SCAMIT member is among the wounded. George suffered a mild heart attack on Sunday 7 July, and when he was examined it was determined he required multiple by-pass surgery to open his arteries. He will have had the surgery by the time you read this, and will be in a long recuperation phase (about 6 weeks off work). There's nothing duller than being forced to relax for so long a period. If you would like to help out by being an irritant, write to him at his home with good wishes for a speedy recovery or even snarky comments about "doctor ordered loitering" or the fact that you are ambulatory and he is not. Comments like the latter can serve to focus his energies on recovery...if only to extract revenge. The address is George Davis, 1503 Stanford Drive, Glendale, California 91205.

UPCOMING SPECIES ID CLUB MEETINGS

The next species ID club meeting will be, August 14 with Nacho, Kristin, and Bonnie, discussing snails (for more information on the Species ID club meetings see the April 2002 newsletter).

DELTA WORKSHOP

The Natural History Museum of Los Angeles County is sponsoring the fifth Crustacean DELTA workshop. The workshop will run from 7-15 October, and space is limited. Please see the attached flyer at the end of the Newsletter for more details and enrollment instructions.

SCAMIT – A NEW EMAIL DISCUSSION GROUP

The Southern California Association of Marine Invertebrate Taxonomists (SCAMIT) is pleased to announce a new email discussion list. This list is intended to enhance communication between marine invertebrate biologists, in

particular on topics of California invertebrate taxonomy and ecology. All individuals or organizations interested in California marine invertebrate taxonomy are invited to join and participate in this new email discussion.

To subscribe to the list:

- 1) Send an email to: scamit-request@lserve.sbnature2.org
- 2) In the body of the email only include the word "subscribe" (not in quotes)
- 3) You will receive an email verification of your intent to subscribe. Simply open the verification request email, click on "reply" then "send" and you will be subscribed to the discussion list.

Make sure your email is sent in "plain text" format, not in "MIME" or "HTML" format. Remember you must go through the above procedure to receive any messages posted on the list server. This system is separate from the monthly email notification about the publication of the newsletter. If you have questions or problems, please send an email to: pvscott@sbnature2.org

We look forward to lively discussions on invertebrate taxonomy!

Kelvin Barwick
President, SCAMIT
kbarwick@sandiego.gov

IS YOU IS, OR IS YOU AIN'T MY WORMY?

Most of us are fairly careful and alert to problems of homonymy within the groups we are familiar with. Some residual problems come out of left-field from groups generally unfamiliar to those working on marine invertebrates.

Such was the case recently with member Sue Williams, who now does quite a bit of work in salt-marshes and other coastal areas where insects abound. While working with some of the older literature Sue came across records of a dipteran fly genus *Eulalia*. Sue's training as



a polychaetologist guaranteed her familiarity with a marine annelid genus of the same name. She contacted me to ask if I knew about the problem, and whether it had been resolved. I didn't know, but proceeded to find out.

It's one of those classic bad news-good news situations. Bad, the dipteran (a stratiomyid soldier fly) has priority under the Code being *Eulalia* Meigen 1800; predating the polychaete *Eulalia* Savigny by at least a decade. Good, the publication in which Meigen proposed *Eulalia* in 1800 was suppressed by ICZN action in 1963, and is unavailable for nomenclatural purposes. This removed the homonymy, making *Eulalia* Savigny available for us to use.

Ron Velarde pointed out that, although there was no mention of the earlier name in Fauchald's "The Polychaete Worms", and it was likewise unmentioned in the phyllocid section of the Atlas, Olga Hartman had noticed the earlier name and listed it in her Catalogue of the Polychaetous Annelids of the World (Part 1). While noting that there was an earlier name use she did not attempt to resolve the homonymy in that 1959 publication (prior to the ICZN suppression action). Thanks to Sue for catching this one on the fly, so to speak.

[As a side note: there appears to be controversy as to the original publication date of the genus. Hartman (1959) used 1817, Fauchald (1977) and later Blake (1994) used 1818, while Pleijel (1991) uses 1822. Since both Hartman and Pleijel refer to the same Savigny publication, and since the date of that publication was fixed at 1822 by ICZN action, it is likely that Pleijel's usage is in fact the correct one. Since the homonymy has been removed, this secondary date controversy has no impact on the availability of the name for an annelid.] - Don Cadien (CSDLAC).

AVAILABLE JOBS

New Brunswick, Canada

Position available at The Huntsman Marine Science Centre
St Andrews by the sea, New Brunswick
University programs coordinator

This position will coordinate university education and research activities at the Huntsman Marine Science Centre; a not-for-profit charity devoted to education, research and technology transfer to industry (www.huntsmanmarine.ca) located in the Bay of Fundy. The University programs coordinator will reserve facilities for visiting field courses and researchers at HMSC, including preparation of budgets and invoicing. The position will also manage a new student exchange program in marine biodiversity between Canadian and European Union universities. There will also be some opportunity for the candidate to teach field courses and conduct environmental research if they wish. It is a full-time position, initially for a three-year period but may be extended as funding permits.

Excellent organization and project management skills, strong computing proficiency, and at least a first degree in a biological science is required. Knowledge of the Canadian university system, and an interest in marine biology, would be useful.

The position may suit graduates with experience on project coordination and management, who are interested in living in a rural seaside village with a strong science community including the oldest (DFO) marine station in Canada, the Atlantic Salmon Federation headquarters, a community college, salmon farming, lobster and herring fisheries, and whale watching and outdoor ecotourism.



Applications containing a letter explaining why the position is of interest and relevant strengths of the applicant, with a full curriculum vitae and contact details (including email, fax) of 3 referees, should be sent by email, fax, or post to:

Ms T. Dean, Director of Education,
The Huntsman Marine Science Centre,
1 Lower Campus Road, St Andrews,
New Brunswick, Canada E5B 2L7.
Tdean@huntsmanmarine.ca
Fax +1-506-529 1212

Deadline for applications 15 July 2002, but late applicants may be considered.

Note this position was first advertised in December 2001. Previous applicants may reapply.

LACMNH

In addition to the Curatorial Assistant position recently announced, the Natural History Museum of Los Angeles County invites applications for two grant funded (2.5 years) curatorial assistants with expertise in crustaceans, mollusks and/or echinoderms. These positions in our Marine Biodiversity Processing Center (<http://collections.nhm.org>) will complement existing staff and reflect the institution's commitment to the Center's growth. We seek qualified persons to assist with the curation, sorting, databasing, and physical integration of orphan collections into the museum's invertebrate collections. Successful candidates should have appropriate degrees in Biology, at least one year of experience with one of the taxonomic groups noted above, and knowledge of contemporary museum collection and specimen conservation techniques. Good oral and written communication skills are essential and experience with collection databasing is desirable.

All two positions are full-time with benefits. Salary: \$30,000/year plus full benefits.

Review of applications continues until positions are filled. Please send your curriculum vitae, name and contact information for three referees, and a cover letter that describes your curatorial experience to:

Dr. Angel Valdes, Mollusca
Natural History Museum of Los Angeles
County
900 Exposition Boulevard
Los Angeles, CA 90007 USA
E-mail: avaldes@nhm.org

T-SHIRTS FOR SALE! HURRY, HURRY!

20th anniversary SCAMIT t-shirts are still available. Get them for the low, low price of only \$15. Contact treasurer Cheryl Brantley to order yours today! If you tragically had to miss the party, wear the shirt and pretend you were there.

LITERATURE REVIEW

A compilation of the differences between the SCAMIT's Edition 4 species list and Skoglund's recent review of the panamic gastropod literature.

By Kelvin Barwick

The recent publication of Skoglund's (2002) review of the Panamic Gastropod literature was the impetus for the following table (which is attached at the end of the newsletter). The table was compiled by making a line-by-line comparison between the species in current usage (SCAMIT, 2001) with what is indexed by Skoglund, (2002). All differences were noted. None of these proposed changes have been adopted by SCAMIT. They are offered up here as advisory only. No attempt was made to compare the higher level taxa. This is well beyond the ability of this worker and is best left to the professionals.

The table is divided into three sections (columns) separated by double lines. The first describes the affected taxa and its corresponding line number as it appears in SCAMIT, 2001. The second section is further



divided into 4 parts: first is the type of change proposed, second is Keen's (1971) original reference number (where applicable), next is the taxa as it appears in Skoglund, 2002, and lastly the corresponding page number. The third section contains this worker's comments that, in part, attempt to highlight and/or resolve apparent contradictions between Skoglund and other authors. In the case of some spelling changes, further research is needed to confirm the correct spelling.

NEW LITERATURE

As we move into summer, the question of the continuing and worsening coastal eutrophication, especially in the Gulf of Mexico, arises again. Nancy Rabalais has become the standard bearer for the campaign to address the issue of bottom water hypoxia at the source, through reduction in nitrogen inputs through the Mississippi River. In a series of articles she and her co-workers summarize the problem (Rabalais & Turner 2001; Rabalais, Turner & Wiseman 2001), describe the impacts to benthos (Rabalais et al 2001), zooplankton (Qureshi & Rabalais 2001), and demersal fish/megabenthos (Rabalais, Harper & Turner 2001), and consider the national policy issues that affect the situation and its future (Rabalais, Turner & Scavia 2002). While our desert climate and narrow shelf make it extremely unlikely that any such severe hypoxic conditions could be broadly established in the Southern California Bight, local hypoxia has occurred in the past around areas of organic oversupply (both natural and anthropogenic), and may well happen in future. Familiarity with the situation in the Gulf of Mexico can only help members, wherever they happen to be. The above papers present one perspective on the problem, but there are others. Interested parties should seek them out. An internet search on hypoxia will probably return more information than any of us has the time to pursue.

Geographic trends in trophic structure were investigated in northeastern Pacific gastropods through a comparison of carnivorous and non-carnivorous taxa frequency (Valentine, Roy & Jablonski 2002). They found that in intermediate latitudes (such as locally) predator/non-predator ratios were lower than in either tropical or arctic areas.

This pattern was at variance with terrestrial investigations that found the ratio fairly constant regardless of latitude. While the authors suggest some possibilities for further research on the factors underlying the observed pattern, they cannot account for it on the basis of current data. An intriguing subject which will hopefully be further examined.

Gene Coan continues his group by group examination of the eastern Pacific bivalves with a paper treating *Sanguinolaria* and *Psammotella* genera distributed generally to the south of us (Coan 2002). This completes the treatment of the psammobiid genera begun in 1973 with *Heterodonax* (Coan 1973) and continued recently with *Gari* (Coan 2000). Given the frequent larval incursions into the Southern California Bight associated with northward moving water masses, it is always wise to keep up with the taxonomy of the Panamic fauna; you never know when you might need to recognize them in your own samples.

Lodo confusion? Heapa trouble?

It pays to revisit older literature once in awhile, if only to find the things previously overlooked. Such a look at Lowry (1984) after nearly 20 years yielded potential problems that I, and others locally, appear to have disregarded. In his treatment of the pachynid amphipod *Prachynella lodo*, Lowry indicated the genus probably contains more than one species in California waters. His comparisons of the illustrations of the species by Barnard 1964 & 1967 with the holotype indicated that the name had been applied to several differing forms.



Barnard, in 1967, noted several varying characters, particularly that the deep water form (to 791m) was anoculate, while individuals from shallower water bore eyes. He also noted pigment patches in the head of the anoculate form matching the location of eyes in the shallower representatives. As there do seem to be other morphological differences between the shallow and deep representatives, perhaps this eye loss has meaning. We have seen, however, that in other forms such as *Heterophoxus oculatus*, eye loss in deeper

living populations is a regularly occurring phenomenon, and is not accompanied by other character differences. We take *P. lodo* in our samples, but seemingly always as single individuals. We have not noted morphological variation like that described by Barnard and Lowry, but then we haven't systematically looked either. Have other members taken a close look at their material for the variations noted by these authors? What did you find? - Don Cadien (CSDLAC)

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Please visit the SCAMIT Website at: <http://www.scamit.org>

SCAMIT OFFICERS:

If you need any other information concerning SCAMIT please feel free to contact any of the officers at their e-mail addresses:

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Treasurer	Chey1 Brantley (310)830-2400x5500	cbrantley@lacs.d.org

Back issues of the newsletter are available. Prices are as follows:

Volumes 1 - 4 (compilation).....	\$ 30.00
Volumes 5 - 7 (compilation).....	\$ 15.00
Volumes 8 - 15	\$ 20.00/vol.

Single back issues are also available at cost.



A compilation of the differences between the SCAMIT's Edition 4 species list and Skoglund's recent review of the panamic gastropod literature. By Kelvin Barwick

Edition 4 SCAMIT, 2001		Skoglund, 2002			Comments	
Line #	Taxa	Changes, additions, deletions, etcÉ	Keen Ref. #	Taxa		Pg. #
815	<i>Finella</i> sp	Different family	--	Finellidae	53	As family Orbitortionidae in Turgeon, et al, 1998
829	<i>Barleeia subtenuis</i>	Additional synonyms	--	<i>Barleeia rimata</i> <i>B. coronadoensis</i> <i>B. sanjuanensis</i>	33	
832	<i>Lirobarleeia kelsyei</i>	Additional synonyms	--	<i>Alba oldroydi</i> <i>Rissoina lapanza</i> <i>R. lowie</i> <i>Alvania bartolmensis</i>	33	
851	<i>Tienostoma supravallatum</i>	Additional synonym	418	<i>Tienostoma invallatum</i>	42	
876	<i>Caecum dalli</i>	Species name change	465	<i>Caecum quadratum</i>	44	
		Became junior synonym of <i>C. quadratum</i>	465		44	
879	<i>Cecum licalium</i>	Species spelling change	465	<i>Caecum licaum</i>	44	
886	<i>Hipponix antiquatus</i>	Subspecies change	766	<i>Hipponix antiquates panamensis</i>	70	
		Additional synonym	766	<i>Hipponix fimbriatus</i>	70	
887	<i>Patella antiquata</i>	Delete as synonym	766		70	
895	<i>Crepidula aculeata</i>	Additional synonym	808	<i>Crepidula intorta</i>	72	
897	<i>Calyptraea echinus</i>	Delete as synonym	808		72	
924	<i>Crepidula cerithicola</i>	Delete as synonym	814		73	
925	<i>Crepidula lirata</i>	Delete as synonym	814		73	
929	<i>Crepidula exuviatas</i>	Species spelling change	815	<i>Crepidula exuviata</i>	73	
932	<i>Crepidatella dorsata</i>	Additional synonym	819	<i>Crepidula orbiculata</i>	73	
941	<i>Crepidula orbiculata</i>	Delete Synonym			73	
944	<i>Crucibulum spinosum</i>	Additional synonyms	826	<i>Crucibulum piliferum</i> <i>C. arculatum</i>	74	
		Elevation of subgenus <i>Hespererato</i>	912	<i>Hespererato columbella</i>	86	Add parentheses to author . <i>E. columbella</i> becomes a junior synonym of <i>H. columbella</i> , fide Cate, 1977.
	Additional synonyms	912	<i>Erato panamensis</i>	86		
972	<i>Hesperato columbella</i>					Incertae sedis Fide Cadien, 1980 and Cate, 1977
973	<i>Erato vitellina</i>	Generic change	--	<i>Hespererato vitellina</i>	86	Add parentheses to author. <i>E. vitellina</i> becomes a junior synonym <i>H. vitellina</i> ,. fide Cate, 1977.

Edition 4 SCAMIT, 2001		Skoglund, 2002			Comments	
Ref. #	Species	Changes, additions, deletions, etc	Keen Ref. #	Species		Pg. #
998	<i>Neverita reclusiana</i>	Additional synonyms	888	<i>Neverita secta</i> <i>Polinices reclusiana alta</i> <i>N. reclusiana imperforata</i> <i>P. reclusiana vancouverensis</i> <i>N. secta hemisecta</i> <i>N. reclusiana xena</i>	82	
1029	<i>Epitonium hindsii</i>	Additional synonyms	652	<i>Epitonium apiculatum</i> <i>E. compradora</i> <i>E. cylindricum</i> <i>E. musidora</i> <i>E. pazianum</i> <i>E. bakhanstranum</i>	59	
1050	<i>Epitonium pilotum</i>	Species gender/spelling change	655	<i>Epitonium polita</i>	58	
1062	<i>Epitonium (Crisposcala)</i> <i>catalinae</i>	Delete synonym	--		59	
1072	<i>Nodiscala spongiosa</i>	Lowered to subgeneric status	686	<i>Opalia (Nodiscala) spongiosa</i>	63	Remove parentheses from author.
1198	<i>Pteropurpura macroptera</i>	Additional synonym	--	<i>Murex carpenteri</i>	115	
1221	<i>Babelomurex oldroydi</i>	Species spelling change	--	<i>Babelomurex oldroydae</i>	121	As <i>B. oldroydi</i> in Turgeon, Et al, 1998.
1297	<i>Nassarius perpinguis</i>	Additional synonyms	--	<i>Nassa corrugata</i> <i>N. intastriata</i> <i>N. interstriata</i> <i>N. perpinguis</i> var. <i>bifasciata</i> <i>Alectrion (Hima) qwatkinanus</i>	141	
1389	<i>Kurtzina beta</i>	Genus/subgenus swap	1792	<i>Kurtziella (Kurtzina) beta</i>	179	As <i>Kurtzina beta</i> in McLean, 1996
1409	<i>Ophiodermella inermis</i>	Additional synonym	--	<i>Surcula ophioderma</i>	178	
1421	<i>Pseudomelatoma penicillata</i>	Additional synonyms	1574	<i>Drillia moesta</i> var. <i>maculata</i> <i>D. eburnean</i> <i>Pleurotoma (Drilla) digna</i> "Probable synonym: <i>Pseudomelatoma</i> <i>stricta</i> "	170	
1468	<i>Rictaxis punctocaelatus</i>	Additional synonym	--	<i>Rictaxis coronadoensis</i> <i>Rictaxis vancouverensis</i>	201	
1511	<i>Trabecula laxa</i>	Additional synonym	2018	<i>Salassiella balchi</i>	193	
1526	<i>Turbonilla tenuicula</i>	Genus name change	2169	<i>Pyrgiscus tenuicula</i>	200	
1526	<i>Turbonilla tenuicula</i>	Additional synonyms	2169	<i>Chemnitzia terebralis</i> <i>C. cerebrifilata</i> , <i>Turbonilla jewetti</i> <i>T. antemunda</i> <i>T. macra</i>	198, 200	

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Ref. #	Species	Changes, additions, deletions, etc	Keen Ref. #	Species	Pg. #	
1550	<i>Aplysiopsis enteromorphae</i>	Additional synonym	--	<i>Aplysiopsis smithi</i> <i>Hermaeina enteromorphae</i>	213	
1601	<i>Acteocina inculta</i>	Additional synonym	2259	<i>Acteocina planulata</i>	204	
1735	<i>Melibe leonina</i>	Additional synonyms	2370	<i>Melibe pellucida</i> <i>Citioraera dalli</i>	221	
1740	<i>Doriopsilla albopunctata</i>	Additional synonyms	2360	<i>Doriopsis fulva</i> ÓSee McDonald, 1983 for complete synonymsÓ	219	
1767	<i>Dendronotus frondosus</i>	Additional synonyms	2363	<i>Tritonia aborescens</i> <i>T. cervina</i> <i>T. reynoldsii</i> <i>T. lactea</i> <i>T. pulcella</i> <i>T. felina</i> <i>T. ascanii</i> <i>Amphitridae facrici</i> <i>Campaspe pusilla</i> <i>C. major</i> <i>Dendronotus luteolus</i> <i>D. purpureus</i> <i>D. ellegans</i>	220	
1815	<i>Hermisenda crassicornis</i>	Additional synonyms	2389	<i>Aeolis opalescens</i> <i>Cuthona (Heruvia) emurai</i>	225	

Fifth Crustacean DELTA Workshop

7-15 October

Natural History Museum of Los Angeles County
Los Angeles, California, U.S.A.

The Natural History Museum of Los Angeles County will host the 5th Crustacean DELTA Workshop from October 7-15, 2002.

The aims of this workshop are to provide training in the use of DELTA taxonomic databasing software and to interest taxonomists in preparing electronic monographs for Crustacea.net.

Crustacea.net is a cooperative, international project of Crustacea taxonomists who are building a website (www.crustacea.net) that publishes electronic monographs on crustaceans at any taxonomic level. These monographs are prepared using DELTA. They include illustrated, interactive keys to each group, plus diagnoses, descriptions and illustrations of each taxon in the group. The objective is to use modern technology to bring together the current taxonomic information and improved identification tools for this major animal group.

DELTA is a computerized method of managing taxonomic research. It involves both the principles of using a database approach to recording, managing and using descriptive data, and a suite of specialized taxonomic software.

Each participant will construct a small database at family, genus or species level on a familiar group of crustaceans. During the construction of the database, participants will be introduced to the advantages of databasing taxonomic information and will learn to use the DELTA software package. The three main functions of the DELTA software system are: production of natural language descriptions; development of illustrated, interactive identification systems; and management of phylogenetic analyses.

If appropriate, finished databases from the workshop can be published on Crustacea.net. Participants will return home equipped to manage their taxonomic research using DELTA and to make subsequent contributions to Crustacea.net.

Participants will need to bring a notebook computer running Windows software (the DELTA software will be provided free at the workshop). They will need to bring dichotomous keys for their chosen group and pictures to produce character and taxon images.

Interested persons should register by completing the on-line application. Enrollment will be limited to 18 participants and determined on a first-come-first-serve basis. A course fee of \$125US applies.

For information on the registration, accommodations and/or schedule, contact:

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For other information about the course, contact:

Jim Lowry (jimlowry@crustacea.net)

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Date: 7 to 15 October, 2002

Cost: \$125 course fee

Registration deadline: August 31, 2002