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Ascidiacea sp A. J. Ljubenkov 2008. Bight'08 Station 7520. Whole animal.

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The SCAMIT newsletter is not deemed to be a valid publication for formal taxonomic purposes.

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27 January 2015, TAXONOMIC TOOLBOX, ASCIDIACEA, SCCWRP

Attendees: Carol Paquette (MBC); Chase McDonald, Don Cadien, Terra Petry, Larry Lovell, Jennette Kirby (LACSD); Greg Lyon, Erin Oderlin (CLA-EMD); Robin Gartman, Megan Lilly, Wendy Enright (CSD); Tony Phillips, Dean Pasko (DCE); Gretchen Lambert (CSU Fullerton-remotely).

Business:

Larry discussed the need to have a nomination for Treasurer, and, after a little arm twisting and much encouragement, Erin was nominated giving the City of Los Angeles possible representation that it has not enjoyed in quite some time.

UPCOMING MEETINGS

Visit the SCAMIT website at: www.scamit.org for the latest upcoming meetings announcements.

Also, in an effort to continue development of our taxonomic tools, we decided that the next meeting should focus on resolution of the confusing *Rhachotropis* (Amphipoda: Eurusidae). Several provisional taxa have been floating around the SCB SCAMIT laboratories, but few have been properly documented to allow appropriate discrimination. Tony, Dean, and Don had recently experienced problems distinguishing *Rhachotropis* sp A Velarde from other described and provisional species. Don expanded the meeting to more generally cover the Eusiroidea section of the Toolbox as well as *Rhachotropis*. The meeting will be on February 18th at the LACSD laboratory.

Larry then recommended that we hold another polychaete meeting. This meeting will be at the LACNHM on March 9th, and will be followed by a meeting on caprellid amphipods in April. We hope to have the City of San Diego host that meeting on Monday, April 13 (Dean - CSD has reserved the room so it's a "go").

Toolbox update: Ascidiacea

Gretchen suggested that we update the hierarchy of Ascidiaceans from the no-longer accepted subphylum Urochordata to Tunicata.

We examined the file containing Dr. J. Vallee's 1976 Key to the Southern California Ascidiaceans and found that the 1978 Guide, a set of introductory material with definitions and illustrations to the characters used in the Key, was missing. Dean also suggested adding a clean scan of the key that didn't have his hand-written notes. Fortunately, Tony had clean copies of all the material and Larry was able to scan them for future posting. This key and guide are invaluable resources for identifying southern California ascidiaceans.

Megan's 1999 Table to the Common Simple Ascidiaceans of the San Diego Ocean Monitoring Program was discussed. The table contains combinations of characters that can be used to distinguish among the common genera of non-colonial ascidiaceans. It also includes page references to Van Name (1945) so that individuals can follow-up a tentative identification in Van Name's detailed account of the North and South American Ascidiaceans.

Tony suggested adding Fay and Vallee's (1979) key to the ascidiaceans that includes descriptions of several new taxa and a revised key. Fortunately, Tony had a clean copy and we were able to scan this one for future posting as well.

We moved on to a discussion of the duplicate copies of the voucher sheet for *Microcosmus exasperatus*, which should be listed as *M. squamiger*. Gretchen discussed the differences between



the two, particularly that *M. exasperatus* has sharply pointed spines on the internal lining of the atrial siphon, while *M. squamiger* has cup-shaped spines. One needs to examine a small cut from the tissue lining the oral siphon under a compound scope to clearly distinguish the spines and their shape. The spines develop from within the oral siphon and move distally as they mature, so the most prominent spines are located towards the tip of the siphon's lining. Gretchen also confirmed that there have been no reliable records of *M. exasperatus* along the North American west coast. She also noted that the gonads of *M. squamiger* occur in three lumps and cross the intestine from primary to secondary loop in larger specimens. The spines and the condition of the ovaries are clearly noted in the voucher sheet.

Wendy then noted several details of the *Microcosmus* voucher sheet that are incorrect. For example the spines are located on the atrial not branchial siphon, as the sheet incorrectly lists them, and the number of folds listed is wrong. It looks like the sheet needs a few updates before reposting.

Megan described the difference between *Molgula* sp SD1 and *M. napiformis*. The former has gonads limited to within the primary curve of the intestinal loop, while those of *M. napiformis* are located in the secondary curve of the intestinal loop. *M. pugetiensis* also looks similar but typically does not possess a stolon or an exceedingly long and robust set of "hairs" for attachment but the gonads are also located in the secondary intestinal loop. There was further discussion regarding *Molgula* sp SD 1 and at one point Gretchen suggested it could belong to the subgenus *Molgulooides*, as that subgenus is defined as having the gonads located in the primary intestinal loop. However, as of preliminary reading, it appears that most species within this genus are found at abyssal depths. More research needs to be done on this animal to try to ascertain its true identity. Megan will be editing the voucher sheet and sending it, as well as specimens, to Gretchen for closer examination.

We all thought that notes from Gretchen's 1998 workshop would be a good addition to the toolbox. Gretchen said that she would review any notes that we generated, and Megan agreed to re-type her hand-written notes. We also thought it would be valuable to post the excerpts from Van Name 1945 that Gretchen had produced for her 1998 meeting.

During this lively discussion, Tony mentioned three websites that he refers to when tackling troubling specimens: Invasive Tunicates of Washington State; Non-indigenous aquatic species; Tunicates of the West Coast of West America. We suggested adding the links to the Toolbox as hyperlinks.

Nonindigenous aquatic species <http://nas.er.usgs.gov>

Tunicates of the west coast of North America http://convoluta.ucdavis.edu/gallery/view_album.php?set_albumName=West_Coast_Tunicates

Invasive tunicates of Washington State <http://pnwscuba.com/invasives/>

Wendy then noted a few missing voucher sheets and identification aids that could be added to the toolbox: The Common Ascidiarians of Point Loma; The Keys to the ascidian families mentioned above; the *Cnemidocarpa rhizopus* and *Molgula napiformis* voucher sheets; and the *Molgula napiformis* vs. *Molgula* SD 1 identification page.



Megan suggested that she has a series of nice photos from her SCAMIT Ascidian workshop (June 2002, Vol. 21 No. 2) that she could post. The problem is finding the original PowerPoint presentation. It is possibly hidden away on a Jazz drive or somewhere at CSD. When Megan first realized the presentation was lost, she did what she could to reassemble it, but some of the images in the updated file are just black and white scans from an old printed copy of the original, which are less than ideal. She will start a search for the original images and post them if/when she finds them.

Tony shared a nice image of *Molgula regularis* that he had from a publication by Karen Sanamyan (1998), a Northwest Pacific Ascidian researcher. You can access PDFs of her publications from her website: www.sanamyan.com/publications/ksanamyan_publications.php.

Megan suggested posting links to the two main papers that she finds very helpful: Lambert (1993) and Lambert & Lambert (1998).

Chase, after sitting quietly for most of the discussion, produced a table listing important characters for all the Ascidians listed on the SCAMIT Ed 8 species list. Everyone was unanimous that it would be good to produce for the web site. Chase said he would review the table for potential modifications and submit it for posting.

Tony suggested that Megan put together a key to the local species of *Molgula*. Gretchen said she would review any key that Megan produced. Silly Megan!

We were then treated to some slides from Megan's PowerPoint showing *Agnezia* being eaten by a flatworm as well as *Molgula* sp SD1 with its branched tentacles, spiral stigmata, kidney, branchial folds, etc. Gretchen suggested that one of the photos of *Molgula* sp SD1 indicated brooding as suggested by the small embryos on the right side of body.

We developed a list of Action Items:

- Megan – type her notes from Gretchen's 1998 workshop, post her PowerPoint from her Ascidian workshop; Prepare a Key to *Molgula*; Revise images of *Molgula* sp SD1 and send specimens to Gretchen.
- Tony – pull together an updated reference list of Tunicates, particularly those that have good illustrations of specimens found in the SCB. Could be added as a separate document of Important References and Websites in the other useful tools section. [*Included within the Reference section of this NL.*]
- Dean – look for digital version of Common Ascidians from Point Loma; Check his electronic files for a back-up of Megan's presentation. Combine images of John's *Ascidacea* sp A from Bight'08 and post to web as "Unknown ascidian".
- Chase – clean-up his Ascidian table and send digital version to Larry and Dean for posting.
- Wendy – Send Dean her listing of changes to the Toolbox.



18 February 2015, TAXONOMIC TOOLBOX, EUSIROIDEA, SCCWRP

Attendees: Craig Campbell, Erin Oberlin, Greg Lyon (CLA-EMD); Kelvin Barwick (OCSD); Don Cadien, Larry Lovell, Terra Petry (LACSD); Ron Velarde, (CSD); Tony Phillips (DCE).

Business:

The actual meeting started at 0930, with Don in the lead. Larry arrived later in the morning, so the business meeting was postponed until the afternoon, coincident with the arrival of our lunch. Once sated, Larry conducted a business meeting. There was a reminder of the next two meetings: a March 16th polychaete tool box review meeting at NHMLAC and April 13th Caprellida tool box review meeting at CSD. After some discussion it was decided that May and June will be devoted to Bight'13 QC reconciliation meetings. There will likely be multiple meetings each month. In other announcements, Larry mentioned the upcoming SCAS meeting May 15–16 at Loyola Marymount and Kelvin reminded everyone of the WSM meeting June 25–28 at CSU Fullerton. SCAMIT elections were discussed next. Larry announced that the current officers: President Larry Lovell, VP Leslie Harris, Secretary Dean Pasko have all been nominated to run for their respective offices. Erin Oberlin (CLAEMD) has been nominated for the office of Treasurer. Larry opened the floor for additional nominations. There were none. Don Cadien motioned to close the nominations; it was seconded by Kelvin Barwick, and unanimously approved. Nominee bios and ballots will be distributed by the end of the month and ballots will be due to Leslie in late March. Election results will be announced by the end of March.

Toolbox update: Eusiroidea

A draft key to the *Rhachotropis* as modified by Dean was given to each of the participants. After circulating the lunch menu and sign-up sheet, we began to consider the content of the taxonomic toolbox on the SCAMIT.org website. The Eusiroidea did not have too many entries. There were four voucher sheets, for *Eusiroides monoculoides*, *Rhachotropis barnardi*, *Rhachotropis distincta*, and *Rhachotropis* sp A.

The first of these was a fairly complete sheet constructed in 2008 to document *Eusiroides* sp A as different from *Eusiroides monoculoides*. It provided distinguishing characters, character differences from other taxa of similar appearance, commentary, and illustrations taken from J. L. Barnard (1964). It has recently been revised, and the revised version, which differs only slightly but names the species *Eusiroides* sp A SCAMIT 2015, is currently under review. When the reviews are completed, changes made, and sheet modified, the corrected sheet can be posted and the current sheet removed. When that occurs the file should be renamed *Eusiroides* sp A SCAMIT 2015 (= *E. monoculoides*)

The other three sheets are all preliminary sheets taken from Lisa Haney's notebooks during the recent harvesting of resources by our intern. Her format is distinctive, and is visible in all three sheets, but there is no direct attribution associated with them. The first, *Rhachotropis barnardi* provides a brief characterization, and illustrations of the species gleaned from Bousfield & Hendrycks 1995. It could stand as is, presenting no incorrect information, but Don offered to update it, providing more information and comparison to other *Rhachotropis* species known from the Northeastern Pacific (NEP). Some commentary concerning the origin of the name and the fact that this was originally considered an eyed form of *R. clemens* will also be added. As later examination of specimens unearthed a *R. clemens* in the OCSD voucher collection dated 1981,



when the ID was accurate. It will be changed to reflect the change introduced into nomenclature by the description of the eyed form as *R. barnardi* in 1995.

The *Rhachotropis distincta* sheet was also accurate, presenting illustrations from Bousfield & Hendrycks 1995, and could be retained without offering misinformation. Don will undertake a similar upgrade to that for *R. barnardi* in the near future. Since the content of the current sheet will not be changed, only augmented, there will be no need for retention of the current sheet on the website once the upgrade is available.

The sheet for *Rhachotropis* sp A currently contains only four characters to help distinguish the taxon. No illustrations of the character states are provided. Ron Velarde, who originated the provisional, will upgrade this sheet in the near future, providing for the first time a comprehensive representation of the species and how it differs from others in the region.

In the Other Useful Tools section under Eusiridae are three entries

- Key to the NEP genera of Eusiridae (dbcadien 2006)
- Key to the NEP *Rhachotropis* (dbcadien 2006)
- Key to Pontogenine genera (dbcadien 2006)

The following actions are needed for these entries

The NEP generic key to eusirids is currently inaccurate as it includes genera in the now separated Calliopiidae and Pontogeneidae within the Eusiridae. Since the erection of the Suborder Senticaudata (Lowry & Myers 2013) these two families have been in a different Infraorder (Hadziida) and suborder (Senticaudata), than the family Eusiridae. A modified key to Eusirid genera has been prepared, and is in review (Cadien 2015). Once the review is completed and any modifications implemented, the new key can be uploaded to the website and replace the current entry.

The Key to the NEP *Rhachotropis* has also been modified since the original posting. It is currently in revision, partially based on the proceedings of yesterday's meeting, and will shortly be finalized: It, like the previous key, can be uploaded to replace this older key

The Key to Pontogenine genera needs to be removed from the entries under the Eusiridae. It can be transferred elsewhere, but the entire hierarchy needs to be revamped to reflect the changes instituted by Lowry & Myers (2013). Under the new scheme the Pontogeneiidae, under which the key should be listed, would fall within the superfamily Calliopioidea within the Infraorder Hadziida of the suborder Senticaudata.

Once the review is completed and the document finalized, an additional tool can be added to the toolbox under the Superfamily Eusiroidea. The document is Amphipoda of the Northeast Pacific (Equator to Aleutians, intertidal to abyss): Eusiroidea – a review by dbcadien 2015.

While it was a bit outside our topic, we visited and evaluated the Family Bateidae in the toolbox. This contains but a single resource, listed as Other Useful Tools: Family Bateidae.pdf, which was also produced by Don in 2006 (dbcadien 2006) although that is not indicated on the page. This has also been updated during the process of production of the above document, and is currently in review. The present listing is mostly correct, although it omits a species now reported to occur in



the Panamic as well as the Tropical West Atlantic, *Batea catharinensis* (Garcia-Madrigal 2007). The revised finalized treatment of Bateidae can be substituted for the current one when uploaded to the website.

Following completion of consideration of the tool-box entries we began to consider the genus *Rhachotropis*. Material was provided by most participants, and representatives of *Rhachotropis* sp HYP1, *Rhachotropis* sp OC2, *Rhachotropis* sp A, *Rhachotropis* sp SD1, and several described species were available for examination. Several other taxa from more distant collections (off Oregon) were also available to broaden the experience of the taxonomists present. We saved those for the end.

Ron had printed several of his worksheets concerning the crest/tooth pattern of the various species, which detailed the presence/absence of dorsal and dorsolateral crests and posterior cusps or teeth on pereonite 6 and 7, pleonites 1-3, and the urosome. His table also contained a few other comments, particularly concerning the size and shape of the ornament on urosomite 1. We considered adding additional information of eyes, telson configuration, and epimeron 2 and 3 shape to this base. He is updating and recasting this tabular presentation slightly, and should have it ready for distribution with the newsletter.

Ron Velarde did a magnificent job manning the scope and juggling the varied specimens requiring review. He first examined the two specimens of *Rhachotropis* sp Hyp1 that were available. No others had been found in the voucher collection at the Hyperion Lab, and Tony Phillips surmised that Jim Rony still had them, and was planning on producing something on the species. He also recalled early on that there had been debate as to whether or not Hyp1 was the same as sp A. Although both of the vouchers were small, they answered the question. The two are the same taxon. Since Ron created *Rhachotropis* sp A in 1985 it considerably predates *Rhachotropis* sp Hyp 1, which was first recorded in 2001. He also examined vouchers of *Rhachotropis* sp A from Hyperion and found them to be correct. The voucher of *R. clemens* in their collection proved to be *R. barnardi*, although when the voucher was created it had been correctly recorded as *R. clemens*. No voucher specimens of *Rhachotropis* sp OC1 were available, and it looked like either the specimens had been lost, or Dean Pasko had reconsidered the taxon previously. Vouchers of *Rhachotropis* sp OC2 were examined, and found to be *R. barnardi*. A voucher of *R. distincta* in the OCS D collection was verified. Ron also reexamined his *Rhachotropis* sp SD1 vouchers and found that they had been accurately represented in the tabular comparison table, and remained different from other local species based on their crest/tooth formula.

Later in the afternoon Ron examined the *Rhachotropis luculenta* vouchers from the LACSD collection, and found them to be his *Rhachotropis* sp A. Since LACSD has not reported *Rhachotropis* sp A (not really knowing what it was), and no other agency reports *R. luculenta*, a mystery was solved. The entry for *R. luculenta* as occurring in the SCB and being on the SCAMIT Ed 9 list will be changed to reflect this correction. Ron then demonstrated specimens of *Rhachotropis* sp CS2 from 1372m depth off Oregon, as well as specimens of *R. clemens*, *R. distincta*, and *R. calceola* from the same area. He also later put specimens of *Eusirus columbianus* out for examination, and commented on a currently unidentified *Eusirus* occurring off San Diego, which greatly resembles *E. columbianus*. This species frequents shallow water, unlike its congener from the north, and has very characteristic surface microstructure according to Ron. Although most of us do not see members of the Bateidae because of their shallow algal habitats, we eminded the group to be on the lookout for them in the regional monitoring harbor/bay samples.



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