

SOUTHERN
CALIFORNIA
ASSOCIATION OF
MARINE
INVERTEBRATE
TAXONOMISTS



November–December, 2016

SCAMIT Newsletter

Vol. 35 No. 4



Turbonilla sp 6
 Phillips 2016



Turbonilla chocolata
 (Carpenter 1864)
 Photo by T. Phillips



Turbonilla tridentata
 (Carpenter 1864)
 Photo by T. Phillips

This Issue

9 NOVEMBER 2016, PYRAMIDELLIDAE: <i>TURBONILLA</i> , OCS D	2
12 DECEMBER 2016, SCAMIT'S DIGITAL FOOTPRINT, SCCWRP.....	8
BIBLIOGRAPHY	12
SCAMIT OFFICERS	13

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

Publication Date: June 2017

9 NOVEMBER 2016, PYRAMIDELLIDAE: *TURBONILLA*, OCSO; T. PHILLIPS, LEAD

Attendees: Larry Lovell, Don Cadien (LACSD); Kelvin Barwick, Mike McCarthy, Ben Ferraro (OCSO); Wendy Enright, Megan Lilly, Ron Velarde (CSD); Tony Phillips, Dean Pasko (Private Consultants)

Remote Attendees: Angela Eagleston (WADOE); Heather Peterson (SFPUC)

Business: [no minutes due to computer problems]

UPCOMING MEETINGS

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

The next meeting will be at SCCWRP to discuss SCAMIT's digital footprint and how to move forward with remote access to meetings, sharing digital materials (photos, libraries), and updating the SCAMIT tools.

Tony started off the meeting on Turbonillids by acknowledging that he was not “the” expert in Pyramidellids. His presentation was the result of 30+ years of observations of *Turbonilla* recorded from Hyperion's (CLA-EMD) monitoring programs and various consulting projects. At an October 2010 SCAMIT meeting, Pat LaFollette encouraged Tony and others to take detailed photographs and share them with each other. He also suggested that we use Abbott 1974 as our primary source. Tony provided a slide of the subgenera from Oldroyd (1927) and Abbott (1974) that summarized the current status of the genera (valid, transferred to other genera or subfamilies, etc.). He presented a second listing of the twenty-three genera currently listed in WoRMS for the Subfamily Turbonillinae. He commented that the genus *Turbonilla* has >1,000 species, while others have only one! The subfamily Turbonillinae has approximately 1,400 species.

The problem we face is that many species were described from dead specimens, which will forever make the issue of species resolution difficult. Consequently, Peñas & Rolán (2010), Cadien (2010: SCAMIT List), and Lygre et al (2011) have decided to leave all species listed within *Turbonilla*, since the generic divisions are confused and not fully resolved.

Peñas and Rolán (2010) provided a list of seven character states to help distinguish species and form. They are primarily limited to shell morphology.

1. Species without spiral sculpture and with axial ribs extending down to the base.
2. Species without spiral sculpture and with axial ribs interrupted suddenly at the periphery of the last whorl.
3. Species without spiral sculpture and with axial ribs on the last whorl which become attenuated towards the base until they disappear.
4. Species with spiral sculpture restricted to the intervals between the axial ribs and not present on the complete whorl.
5. Species with spiral sculpture restricted to the intervals between the axial ribs, present on the complete whorl, and with axial ribs extending down to the base.
6. Species with spiral sculpture restricted to the intervals between the axial ribs, present on the complete whorl, and with axial ribs that are suddenly interrupted on the periphery of the last whorl.
7. Species with spiral sculpture visible both in the intervals and on the ribs.



Tony then provided his list of 12 character states used to separate taxa for the current review. His presentation includes figures and photos that demonstrate each of the character states listed below. It is posted to the SCAMIT website and can be found here:

<https://www.scamit.org/tools/toolbox-new/MOLLUSCA/Subphylum%20Conchifera/Class%20Gastropoda/Subclass%20Orthogastropoda/Superorder%20Heterobranchia/Order%20%22Lower%20Heterobranchia%22/Superfamily%20Pyramidelloidea/Family%20Pyramidellidae/Subfamily%20Turbonillinae/Turbonilla%20SCB%202016.pdf>

1. Protoconch (if present) – Tony provided illustrations from Peñas & Rolán (2010) showing the angle of the protoconch and the orientation of the termination point. Tony has found that all the specimens he has examined are represented by Figure A in the publication.
2. Whorls rounded vs. shouldered (examine the distal end of the whorl).
3. Axial ribs without spiral sculpture.
4. Axial ribs with spiral sculpture in intervals.
5. Axial ribs stop at periphery of last whorl.
6. Axial ribs extend beyond periphery of last whorl towards base (at aperature).
7. Spiral sculpture restricted to intervals between the axial ribs.
8. Spiral sculpture visible both in the intervals and on the ribs.
9. Spiral striations on whorls vs. spiral sculpture absent. Note that there are small bands spiraling through the whorls.
10. With strong axial ribs and spiral sculpture, the junction of which is usually nodulose (i.e., nodules present at the intersection of the axial rib and spiral (transverse) sculpture or ridge).
11. Spiral striations present vs. absent on base of last whorl. Note that the base is the area where the first whorl originates, near the aperature.
12. Inner lip with plications (teeth) vs. inner lip smooth.

Tony then presented species collected from the Southern California Bight (SCB). All speciated *Turbonilla* were identified by Pat La Follette after reviewing an earlier version of this presentation. All of the included provisional taxa are based on the above 12 character states as of 2016 (i.e., authority as Phillips 2016). He included a listing of the SCB species grouped according to Abbott (1974) usage of *Bartschella*, *Chemnitzia*, *Momula*, *Pyrgiscus*, and *Pyrgolampros*.

Following is a listing of the species included in Tony's presentation, augmented with a few notes on whatever commentary could be captured. Each species was represented by one or more slides with pictures, a list of the 12 character states used to distinguish them, range of collections within the SCB, and depths collected.



Bartschella Iredale 1917, according to Abbott (1974) are “*Turbonillas* with well-rounded whorls, marked with strong axial ribs and strong spiral cords, the junction of which are usually subnodulose.”

- *Turbonilla laminata* (Carpenter 1864) = *Turbonilla* sp Hyp4 1998; ?*Turbonilla andrewsi* MBC 2002; *Turbonilla* sp F (Palmo) MBC 1971. The latter picture (sp F) caused Don to ask if the orientation of the axial ribbing made a difference (e.g., vertical, obliquely angled, etc.). When comparing the three provisional species, Tony found that the number of axial ribs was the same, the number of whorls were the same, and the number of the spiral ribs on the base were the same (6–7).
- *Turbonilla tenuicula* (Gould 1853) = *Turbonilla* sp DC2 Phillips 2015; *T. tenuicula* MBC 1971.
- *Turbonilla* sp 13 = *Turbonilla* sp K MBC 1973. Don noted that the whorls expand differentially from distal to proximal: the first couple expand in steps, but the few proximal whorls are little expanded.

Chemnitzia d’Orbigny 1840, according to Abbott (1974) are “*Turbonillas* without spiral sculpturing, having prominent axial ribs which fuse or terminate at the periphery. Intercostal areas sunken. Base smooth.”

- *Turbonilla santarosana* (D & B 1909) = *Turbonilla* sp SD1 Barwick 1995; *Turbonilla* sp Hyp2 Phillips 1996. This is one of the top two most common species in SCB monitoring.
- *Turbonilla* sp 1 Phillips 2016 = *Turbonilla* sp Hyp3 Phillips 1996. It has more strongly produced axial ribs, without basal striations. The axial ribs have a deep channel between them which cause them to stand out. Megan stated she might have lumped this species with *T. santarosana* due to similarities between the two. Don noted that the *Turbonilla* sp 1 aperture is subquadrate relative to the more rounded aperture in *T. santarosana*.
- *Turbonilla* sp 2 Phillips 2016 = *Turbonilla* sp Hyp8 Phillips 2011. *Turbonilla* sp 2 has a small rounded aperture, and more compacted axial ribs on a more elongate, narrow shell.

Momula A. Adams 1864. According to Dall and Bartsch (1909) “*Turbonillas* having axial ribs and deeply incised spiral lines; also irregularly disposed varices on the outer surface, which usually mark internal lirations on the outer lip, or internal lirations of the outer lip only. Sculpture never nodulose.”

- *Turbonilla tridentata* (Carpenter 1864) = *Turbonilla* sp DCE1 Phillips 2015.
- *Turbonilla* sp 12 Phillips 2016 = *Mormula* sp 2 Phillips 2015.

Pyrgiscus Philippi 1841. According to Abbott (1974) “*Turbonillas* having strong spiral incised grooves as well as axial ribs. Summits of the whorls not strongly shouldered.”

- *Turbonilla signae* (D & B 1909) = *Turbonilla* (*Pyrgiscus*) sp Hyp2 Phillips 1996; *Turbonilla* sp M MBC 1979. Tony noted that there is orange pigmentation within the slits. A notable character is the 19–20 deep slits per intercostal area, many more than other species.
- *Turbonilla weldi* (D & B 1909) = *Turbonilla* sp GOL1 Phillips 2014. This species has a high number of axial ribs (24).



- *Turbonilla* sp A SCAMIT 1988. Spiral striations along whorl, but not on the base. A very common species in SCB, and the first SCAMIT provisional.
- *Turbonilla* sp 3 Phillips 2016 = *Turbonilla* (*Pyrgiscus*) sp Hyp4 Phillips 2006. This species has retracted axial ribs (angled back) vs. protracted (angled forward), relative to angle of aperture.
- *Turbonilla* sp 4 Phillips 2016 = *Turbonilla* (*Pyrgiscus*) sp Hyp3 Phillips 2005.
- *Turbonilla* sp 5 Phillips 2016 = *Turbonilla* sp OC1 Phillips 2012. Elongate narrow species with spiral slits (19–20) between axial ribs.
- *Turbonilla* sp 6 Phillips 2016 = *Turbonilla* sp Hyp7 Phillips 2004. Retracted axial ribs with rounded whorls, and “painted” slits that vary in width without consistency. Dominant species in Avila Beach area.
- *Turbonilla* sp 7 Phillips 2016 = *Turbonilla* (*Pyrgolampros*) sp Hyp1 Phillips 2004.
- *Turbonilla* sp 11 Phillips 2016 = *Turbonilla* sp I MBC 1971. (From only one individual) Has slightly shouldered whorls, with 28-30 strong axial ribs with 12-13 sunken spiral slits per intercostal area.

Pyrgolampros Sacco 1892. According to Abbott (1974), “Brown to yellow *Turbonillas* with low, broad axial ribs that gradually disappear over the periphery and base of the last whorl. Spiral striations present. Surface covered with a thin periostracum. Intercostal spaces not grooved out or sunken.”

- *Turbonilla* sp 8 Phillips 2016 = *Turbonilla* sp SMB5 Phillips 2010. Strong axial ribs but without spiral ribs between them; instead, spiral striations are present as thin bands of color difference, not physical rib or structure.
- *Turbonilla* sp 9 Phillips 2016 = *Turbonilla* sp Mont2 Phillips 2014, with very unique aperture that is angled and rounded simultaneously. From Montecito, near Santa Barbara.
- *Turbonilla* sp 10 Phillips 2016 = *Turbonilla* sp Mont1 Phillips 2014. No spiral striations on base, though they are present on the whorls.
- *Turbonilla chocolata* (Carpenter 1864) = *Turbonilla* sp LAH1 Phillips 2010; *Turbonilla* sp SMB1 2001 (in part); and *Turbonilla* sp O MBC 1982. Tony’s pictures represent what he might call “form A” of *T. chocolata*. The specimens of *Turbonilla* sp SMB1 and *Turbonilla* sp L MBC represent Tony’s “form B” which has spiral striations on the base, where form A does not. *Turbonilla* sp SMB4 represents Tony’s “form C” with weak axial ribbing. Wendy noted that *Turbonilla* sp SD2 was also dropped into *T. chocolata*. This raised questions about where the synonymy of *Turbonilla* sp SD2 came from, but this had been documented at the 2010 SCAMIT meeting.

Tony explained that he begins counting the ribs from the top of the aperture, moving clockwise to the point at which the plane of the aperture comes in view again. When the aperture is broken, count the ribs between the two outer ribs when the specimen is lying flat and double that number to obtain a fairly accurate estimate. Tony clarified that the rib count always comes from the last whorl, nearest the aperture.

Kelvin suggested that a table of the characters might prove easier for everyone to follow when trying to perform their identifications. Megan offered to try to tabulate the characters Tony



provided to make it an easier ID process. [Ed's note: Tony has since started work on this table, letting Megan "off the hook"].

Don noted that the list of 12 characters is immensely valuable, and a standard that everyone can use to compare their specimens. Tony then explained his procedure for making his identifications. He first takes stake of the aperture and then turns the specimen over to look at the backside. He then takes a close look at ribs or striations, and then moves on to focus on the shoulder - is it rounded, or grooved, etc.

The group noted one of the significant issues still to be tackled is the variation that exists and how to note these variations.

Not all the species that Tony presented were generated from live material, some represented dead specimens. Tony stated that those species represented by only dead specimens had been found in two or more samples. He also noted that he has several additional species that he did not present because they are represented by only one specimen and he feels until more specimens can be found (hopefully alive), he will not include them on his list. He added that nearly half of the species in Peñas & Rolán (2010) were described from dead specimens.

Tony's breath of experience allowed him to suggest that *Turbonilla santarosana*, *Turbonilla* sp A, and *T. chocolata* are the three most common species up and down the SCB coast.

Larry noted that there are 15 taxa in the SCAMIT Species List, some of which were not covered by Tony, such as *Turbonilla diegensis*, *T. raymondi*, and *T. regina*. It is thought some may have come from past Bight surveys, or represent legacy reports, specifically from early surveys conducted by MBC, and should be reviewed.

Tony finished his presentation stating that he hoped when the McLean volume comes out, in the Pyramidellid section (in particular the Turbonillinae), all of the provisional species in this presentation will be speciated by Pat La Follette.

After lunch Kelvin lead us on a brief side-excursion into bivalves, Nuculanids, prior to continuing on the *Turbonilla* theme. He and Tony reviewed specimens from the Catalina Sea Ranch, an area off LA Harbor that is designated for aquaculture, and which also borders the OCSD monitoring program. The specimens looked like *Nuculana taphria* except for the presence of forward and aft bumps on either side of the umbo. In addition, Tony noted that the posterior section of the shell has ribbing, which is typically absent in *N. taphria*. Kelvin showed specimens from Orange County, which did not show the nodes/bumps. City of San Diego mentioned that some of its specimens also showed the nodes. Kelvin then presented a group of eight specimens in a growth series from the City of LA, some of which possessed the nodes and others not. Some present felt the above-mentioned features could be considered acceptable variations within a species.

And then it was back to *Turbonilla*. The group migrated into the lab and reviewed specimens from the City of San Diego and OCSD. Kelvin took digital images of all the specimens that Tony will incorporate into his presentation once confirmation of each species, and the corresponding digital pictures taken for each, is made. The first was *Turbonilla* sp SD2 from the CSD voucher collection, 51m station. Kelvin, Megan, Ron, and Tony confirmed that the CSD voucher does seem to match *T. chocolata* (form A) with spiral striations from the axial ribbing through the inner space.



We then looked at several specimens of ?*Turbonilla* sp A from OCSD's monitoring program brought by Mike McCarthy. The spiral striations did not extend to the top of the axial rib/were not continuous so therefore they could not be *Turbonilla* sp A. There were 6 spiral ribs in two of the specimens.

Kelvin showed specimens of *Turbonilla* sp SD5, which look like *Turbonilla* sp A, just a little smaller and fatter, with approximately 20 axial ribs and spiral sculpturing. There are about 9 spiral slits that extend onto the axial ribs as well as the inner space between ribs. Tony did not recognize it from any of the work he prepared. He believes it to be new and a part of the *Pyrgiscus* group. Another, smaller specimen was examined and appeared to be the same. Review upon drying confirmed the specimen as *Turbonilla* sp SD5.

Turbonilla sp SD6 is an elongated, narrow species with a correspondingly elongate, narrow aperture. It is very similar to Tony's *Turbonilla* sp 5, but differs in the structure of the spiral slits, and the fact that the axial ribs stop abruptly at the base with a distinct border, creating a smooth base. The spiral slits also go up the sides of the axial ribs, but do not extend on to the top of the ribs. Some concern began however, when a pair of specimens from deeper water (100m) looked more similar to *Turbonilla* sp 5 because the axial ribs extended weakly onto the base, as they do in *Turbonilla* sp 5. The first specimen examined was collected in shallow water (27m) and had a smooth base as described. The two lots appeared to have differences that were distinct. To confirm our prior observations we viewed another deepwater specimen of *Turbonilla* sp SD6. This particular specimen had the axial ribs continue to the base weakly as in the original deepwater specimens. Bottom line, there could be some issue with *Turbonilla* sp SD6.

We then brought out a specimen that Kelvin had identified as *Turbonilla* sp SD7. This species is chestnut brown with white stripes, has 24-26 axial ribs (with one specimen having up to 34), has thickened spiral ribs (7 per whorl) with broad, deep pits between them, plus a subsutural cord running between body whorls, less pronounced shoulders, and is more confluent from whorl to whorl; It also has about 6–7 spiral ribs on the base. A third lot of *Turbonilla* sp SD7 was also examined. These specimens were a bit more degraded, such that the axial ribs had been worn down. This is definitely not *T. signae* because of the absence of produced axial ribs. Both *Turbonilla* sp SD5 and SD7 are from the South Bay Ocean Outfall monitoring program in shallow sandy sediments.

Turbonilla sp SD8 was next, also with deep axial ribs (12) and inflated shoulders without nodules from 116m station. The specimen was small with 5 complete whorls, and was white, without color. So far, we've decided that SD7, 8, and 9 are all new, and were not represented in Tony's presentation.

We then examined a dried specimen of *Turbonilla* sp SD8 (with a second label of *Turbonilla* sp C). Tony postulated that it could be *T. laminata*. The specimen had 22–24 axial ribs, and brown banding (not white like the previous specimen). There were spiral punctations on the base.

A voucher of *Turbonilla* sp SD9 was brought by Kelvin. It is a small, fat, round turbonillid, with approximately 14 deep, protracted, axial ribs on inflated (convex) whorls. The specimens were generally white, not dark, from about 162m. This is a one-time record with no other specimens having been recorded.

With that we called it a day and went our various ways to consider *Turbonilla*.



12 DECEMBER 2016, SCAMIT'S DIGITAL FOOTPRINT, SCCWRP; D. PENTCHEFF, LEAD

Attendees: Kelvin Barwick, Ben Ferraro, Rob Gamber, Mike McCarthy (OCSO); Larry Lovell, Brent Haggin, Bill Powers (LACSD); Ron Velarde, Wendy Enright, Megan Lilly (CSD); Greg Lyon (CLA-EMD); Dean Pentcheff (NHMLAC); Tony Phillips, Dean Pasko (Private Consultants)

Larry opened with a short request for officer nominations, specifically the President, and Dean Pasko announced that he may not be running for Secretary next year. Dean's decision is dependent on how 2017 shapes up with other commitments. Larry then announced upcoming SCAMIT meetings and Wendy announced the upcoming WSM meetings in 2017 and 2018, the latter of which may be held in Hawaii! The 2019 International Polychaete meeting will be held at the Queen Mary in Long Beach and the organizing committee consists of several SCAMIT officers and members including, Larry Lovell, Leslie Harris, Don Reish, and Kirk Fitzhugh, among others. Brent added that next WSN will be meeting in Pasadena in November 2017.

Kelvin announced a new book - *Marine Invertebrates of Northwest Mexico - Invertebrados Marinos del Noroeste del Mexico* by Bertsch and Rosas (2016).

Larry then turned over the meeting to our Webmaster and digital consultant, Dean Pentcheff, to discuss options for SCAMIT's digital footprint: access to digital taxonomic literature, the SCAMIT website look and content, a digital Species List management system, access to WiFi during SCAMIT meetings, and options for digital microscopy display during SCAMIT workshops.

Topping the list for items to be discussed was how SCAMIT should deal with digital taxonomic literature. This item came to light during a recent SCAMIT Species List Review Committee (SLRC) meeting and, in part, as a result of several SCAMIT members providing taxonomy training and sharing PDF files of their taxonomic literature collections. Members often share PDFs, and other documents by thumb drives, etc., and we realized that perhaps there was a better way. Dean suggested several options for sharing these materials:

- Custom-built like the NHM's Systematic Publications website. Not recommended because of intense labor involved and ongoing maintenance in perpetuity.
- Mendeley, a public reference/PDF manager, is designed as a sharing site. However, Dean did not recommend Mendeley because it is owned by a profit-oriented company not too interested in intellectual sharing.
- Zotero is a public reference/PDF manager. Some of the benefits include:
 - a. Information can be shared and made completely public or shared to restrictive groups.
 - b. You create your own grouping of publications.
 - c. It is compatible with EndNote (import and export of references) and plays well with other systems such as Word.
 - d. It has a Dropbox-like back end from which it operates. Like Dropbox it does store the information to your computer hard drive.
 - e. It has a web-interface as well as a stand-alone application.



- f. Has the ability to pull in citation information and PDFs to the “library”.
 - g. Also can operate as a library manager, so that you can make notes on each entry, share a library subset (without creating duplicates of the individual references), etc.
 - h. You don’t need a “manager” per se, but there are different levels of privileges that may be assigned to individuals within a group if necessary.
- EndNote is a private system that has the ability to share libraries on the back-end, in a Dropbox-like system.

The Museum’s in-house system was built before Zotero existed, but has since evolved to have more elaborate and specialized requirements.

Zotero can take existing PDFs, if optical character recognition (OCR) capable, and can read the file to create the metadata (i.e., you can drop in a PDF and tell Zotero to grab and enter the bibliographic information from the web).

Dean thought that the system seems to be stable and steady and funded for continued functioning. He has been using it for about 5 years as the NHMLAC’s Marine Biodiversity Center reference sharing system, and it is still running without issue. Costs are free for the first 5GB, but you do have to pay a nominal fee for additional storage.

Kelvin raised the question of copyright issues. Because we often share information informally in ways that don’t violate copyright, would a more broadly distributed sharing generate concern with the issue of copyright?

The Museum looked at the “Fair Use” clauses of U.S. copyright law with respect to establishing their publicly-available database of taxonomic PDFs. The law includes 4 criteria:

- The amount and/or portion of the material: basically, are you using the full journal or just a portion of the journal, i.e., an article.
- Usage: commercial vs. academic.
- Type of work: copyright is more stringently applied for creative work, while compilations of data or factual reports of observation are considered less deserving of protection.
- Economic damage to originator: is there economic damage to the originator that would result from the copying.

The Museum’s legal counsel looked at these issues and, with an admittedly liberal interpretation, decided that the museum was not violating copyright law by sharing the decapod taxonomic literature they had compiled for their specific project. Consequently, since SCAMIT would be doing something similar it also would likely not be violating the broad interpretation of copyright law — this sharing would be allowable under Fair Use.

With respect to operation, Zotero works fine as a stand-alone program, as well as via web-based access. It seems to have been initially designed to operate as a Firefox plug-in, and works very well with Firefox (but also works with Chrome and Safari).



With respect to input, acquisition, and processing of PDFs, those files that are “born-digital” (PDF) are easy because they are already machine-readable (no OCR is needed). However, older publications that have a paper origin require additional work; scanning, OCR, etc.

The Museum has found the following system works well for processing their hardcopy documents: They scan text and line drawings at 400 dpi, and greyscale and color illustrations at 600 dpi. For their purposes, they found Abbyy FineReader 12 Professional to be the best OCR reader available. They perform OCR on the complete 400 dpi in black and white (B&W), which is great for text and line drawings. Any color plates are then scanned separately and the individual pages from the original B&W scan replaced. Dean noted that the Museum is willing to help and train if anyone needs a little assistance to get started. The guidelines are also documented online at:

<http://research.nhm.org/mbc/protocols/scanning/>

A side discussion of the use of Adobe Acrobat vs. other OCR readers lead to an understanding that Adobe is not that great of an OCR system relative to, for example, Abbyy FineReader. The latter has the ability to read a greater variety of font and character types as well as languages. In contrast, Adobe Acrobat reads the more recent and common digital fonts well, but does not perform as well on the older fonts commonly encountered in historic taxonomic literature.

Kelvin asked what is it that SCAMIT is trying to do with this effort? Was it to set groups of references prior to a meeting? Was it to link species to a reference, or set of references? Could it be used to make the SCAMIT Species List more dynamic and valuable? So, could the Zotero database be set-up to make a link directly to a specific publication? I [the Secretary] think the most basic usage was to simply share literature without having to use thumb drives. Zotero does have the ability to provide links to a specific paper, but that issue is subject to problems if one person edits the link and/or the link disappears as a result.

As an Action Item, we suggest that each of the agencies go back to their IT department to ask:

- Can we download Zotero to our computers?
- Are there storage issues?
- Can we run Firefox and get a plug-in for Firefox to allow usage of Zotero?

There was some discussion about how to begin. Dean recommended that if we are trying to create a communal bibliographic library, to start with the largest, most complete bibliographies possible. Because of the problem of reconciling near-duplicate entries, merging in other large bibliographic collections is very time-consuming.

With some reluctance by the Chair, the effort to deal with this question was placed with the SLRC. Some of the resultant action items to be completed prior to the next SLRC meeting in January 2017 include (1) Dean Pasko will perform a test load of his literature file to see how the metadata is generated on bulk uploads; and (2) each member of the SLRC committee will talk to their IT departments about the questions above. They will take this information into consideration for developing a plan moving forward.

SCAMIT Website Content was the next topic for discussion. Dean started with a list of all the things on the SCAMIT website, which included a lot! Dean then suggested that some items might be re-grouped for simplicity, while others might be deleted. Among the things to delete - the



toolbox remainders, the links page, the Morphbank Workbooks, SCAMIT/SAFIT workshop (note that these will be sidelined to an archive section — they'll still be available if someone needs them one day).

The new suggested structure includes a Top Page (Upcoming Meetings, Meeting Calendar, Upcoming Other Meetings); Member History (First International Polychaete Day, SCAMIT History PowerPoint, Membership & History), Jobs, Grants, Newsletters, Tools (current edition of the Species List, Taxonomic Database Link, Voucher Guidelines, Taxonomic Toolbox).

Dean also talked about a general update and potentially different look to the webpage. Currently the site has a linear construction, but another option is the grid-based page design (e.g., MBARI page). The linear is a little easier for Dean to manage and change, and is more easily adapted to responsive design for use on a tablet or phone. Dean offered to mock-up a grid-based main page, followed by a linear page, for consideration by the Executive Committee.

Kelvin then suggested that SCAMIT consider moving to an on-line membership form, as well as on-line payment via something like PayPal. Those present generally agreed that this would be a good idea and Dean said that it was possible to work these items into the site going forward.

We then dove headlong into Species List management. The Taxonomic Database Tool was the starting point. It has several limitations such as being based on Edition 7, and it does not yet perfectly link out to the individual species information. It does however link to maps using what data has been entered to date.

Dean outlined what he understood to be the desires of members for List management: make the current List available online, have the ability to emend and manage the List, manage synonymies, and track its history.

Dean suggested that we disassociate the List management from the taxonomic database tool. We can always go back to link it to the database tool (or visa versa), but trying to manage the two items concurrently creates problems and has hampered progress.

After lunch we discussed the idea of how SCAMIT could provide a WiFi network to attendees separate from that of the hosting facility, since SCWRP is one of the few facilities that provides a public WiFi. Dean suggested a company called Mobilebeacon, which can provide a fee-based 4g network. Through “TechSoup”, the cost is \$18 for the unit (referred to as a “puck”) and a \$120/year subscription cost. It is based on Sprint’s cell-phone coverage. Some considerations include that coverage could be limited by Sprint’s coverage, the cell-tower availability (for example, if you’re in a basement facility such as in the museum), and a limit of 10 computers/puck. Those in attendance considered this to be a very good option for the Executive Committee to consider.

The last item for discussion was the ability to allow digital images from a microscope to be shared during SCAMIT meetings. Dean summarized that live video was not the desired outcome – too much waiting around for the operator to actually produce the desired image – but that displaying and distributing the resultant still image was the main objective. So the real purpose is to share a still image on a screen that can be viewed online. One possible solution is the software Helicon Remote by HeliconSoft in conjunction with a digital SLR camera, Dropbox, and a projector. Helicon Remote allows you to run the camera by interfacing between your camera and computer. At a relatively low cost (\$75 for the software), SCAMIT would have the ability to capture images directly from the camera to a computer and automatically post them to a Dropbox



folder where they could be immediately retrieved and viewed by those attending the meeting remotely. (Of course, that depends on Dropbox being available/permitted on the remote attendees' computers.)

Ben asked if SCAMIT had approved the membership fee increase that was discussed at the September meeting. Larry responded that we had not done so, but that the next President might take on that task. That discussion led to a search for our Bylaws on the website, only to find that they are not available on the website! After a little effort, we found several sets of ByLaws included in various NLs (e.g., the 1983, Vol. 1, No. 12). The most recent ByLaws are presented in the Vol. 22, No. 11. The original dues were \$5 in 1983 and were eventually raised to \$15 per digital subscription and \$30 for the printed version. In order for dues to be raised, 2/3 of the members who respond to a request for raising said dues, must vote “yes”.

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SCAMIT OFFICERS

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

President	Larry Lovell (310)830-2400X5613	llovell@lacsdsd.org
Vice-President	Leslie Harris (213)763-3234	lharris@nhm.org
Secretary	Dean Pasko (858)395-2104	deanpasko@yahoo.com
Treasurer	Erin Oderlin (310)648-5477	erin.oderlin@lacity.org

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SCAMIT
PO Box 50162
Long Beach, CA 90815