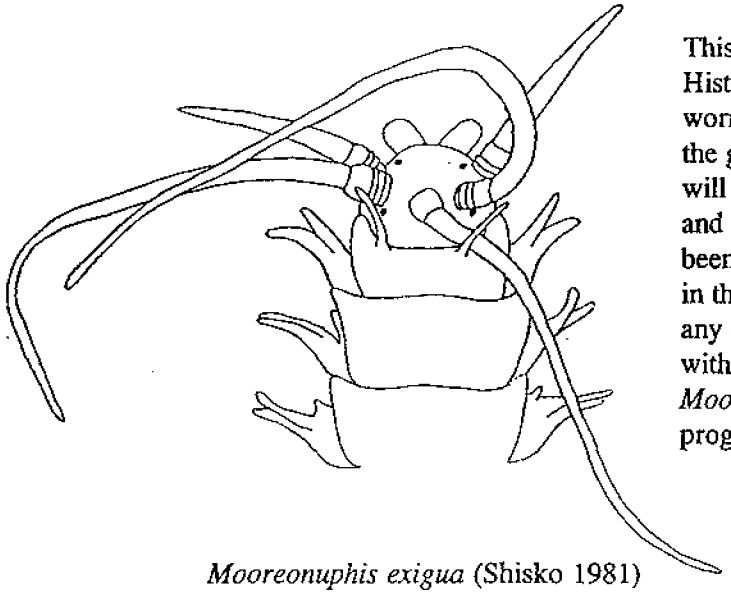
June, 1997 **SCAMIT Newsletter** Vol. 16, No.2

NEXT MEETING:	Onuphids, particularly *Mooreonuphis*
GUEST SPEAKER:	Ron Velarde
DATE:	Monday, 14 July 1997
TIME:	9:30 AM to 3:30 PM
LOCATION:	Worm Lab, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles CA. 90011



Mooreonuphis exigua (Shisko 1981)

JULY 14 MEETING

This meeting will be once again be at the Natural History Museum in the worm lab. This month's worm topic will be onuphids, especially those of the genus *Mooreonuphis*. President Ron Velarde will once again be leading the discussion. Ron and his colleagues at the City of San Diego have been finding all sorts of different *Mooreonuphis* in their benthic sampling program. Please bring any odd onuphids that you may need assistance with and examples of the species of *Mooreonuphis* that you see in your sampling programs.

FUNDS FOR THIS PUBLICATION PROVIDED, IN PART, BY THE
ARCO FOUNDATION, CHEVRON USA, AND TEXACO INC.

SANTA MARIA BASIN ATLAS

Two new volumes of the *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel* series have just been released by the Santa Barbara Museum of Natural History. Volumes 10 and 11 complete coverage of arthropods, dealing with decapods, pycnogonids, mysids (Volume 10), isopods, tanaids, and cumaceans (Volume 11). Their production path has been long and frustrating, but is now at an end. A number of new taxa names are established in Vol. 11 for species long known under local provisional names. To aid in the conversion of past data we have attached a list of the old provisional name and the equivalent newly described species to this newsletter. If you are a series subscriber you will soon be receiving these two volumes together, if you have not already received them. Other interested parties can order the volumes from the Santa Barbara Museum of Natural History at

2559 Puesta del Sol Road
Santa Barbara, California 93105-2936

NEW LITERATURE

The relationship between exponential larval (and early juvenile) mortality and the onset of first reproduction was examined by Gosselin and Qian (1997) using data from a variety of invertebrates. They compiled data from numerous sources and found that, while there was a full-spectrum of age-to-maturity periods represented, the distribution was distinctly bimodal. Modes corresponded to early reproducing r-adapted species centered around 45 days after settlement (22% of the taxa); and to late maturing k-adapted species at 1+years (60% of the taxa).

Exponential mortality within the period following settlement affects the former group more strongly, as for nearly all studied populations mortality dropped to low levels after the first 4 months of post-settlement life.

This pattern of dependence of mortality rate on age in juveniles is often not incorporated into population modeling. This is the case in a recent examination of *Cancer magister* population cycling by Higgins et al. (1997). It is not clear how the failure of their assumption of independence between juvenile survivorship and age would affect their results, but since they found small variations in vital rates (such as mortality) can cause wide swings in population density, we assume the non-independence would not affect their conclusions. They found that population histories with both chaotic and non-chaotic behavior were predicted by their model, and that switching between these domains was not entirely predictable.

Their focus was on a more realistic modeling of populations with density-dependance in recruitment and age structure. The sorts of major density excursions and changes in population cycle period they demonstrated both for very minor changes in vital variables, and for stable environmental conditions, point up the difficulty in management of invertebrate fisheries. Similar population characteristics may have been responsible for some noteworthy recent failures in resource management.

Crabs of the family Calappidae were cladistically analyzed by Bellwood (1996). She found that some of the current allocations of genera to sub-families, or even to families, were questionable and provided revised classifications of the Calappidae and Oxystomata based on the analysis.

The symbiosis between hermit crabs and sponges was reexamined by Sandford and Kelly-Borges (1997). Their main focus was on a poorly known association from the Gulf of Mexico between several hermit crabs in the genera *Pagurus* and *Paguristes* and the sponge *Spongosorites suberitoides*. They also summarize world-wide associations between suberitid sponges and hermit crabs, including the northeast Pacific *Suberites ficus* and *Suberites domuncula* associations.

An association between the isopod *Edotia doellojuradoi* and mytilid mussels was described from the Falkland Islands (Gray et al 1997). This is the second *Edotia* - clam endosymbiosis known. The first involved *Edotia magellanica* and both *Mytilus chilensis* (Jaramillo et al 1981), and *Mulinia edulis* (Gonzalez and Jaramillo 1991). While all three of these instances are southern ocean, they raise again the possibility that our local *Edotia* are also associated in some fashion with bivalves. Neither of the *Edotia* found inside clams has specially adapted appendages, or is visibly modified for residence within bivalve mantle cavities. In the intertidal beds of mussels inhabited by *E. doellojuradoi*, it was not found free-living, while a second species (thought to be *E. tuberculata*) was. It seems unlikely that either of our local species are clam-associates, but we should remain alert to the possibility, and observe accordingly.

The hydroid genus *Staurotheca* was reconsidered based on recent Antarctic collections (Peña Cantero et al 1997). They describe six new species in the genus, and redefine both *Staurotheca* and *Thuiaria*. Species formerly placed in *Selaginopsis* were reallocated; to *Staurotheca* (southern hemisphere species), or to *Thuiaria* (northern hemisphere species).

Application of molecular phylogenetic techniques continue with examination of mitochondrial DNA sequences from vestimentiferans taken off Japan (Kojima et al 1997), and with cephalopods from numerous sources (Bocher-Rodoni and Bonnaud 1996, Bonnaud et al 1996, and Bonnaud et al 1997). Five vestimentiferans, species of either *Lamellibranchia* or *Escarpia*, were compared using sequences from the cytochrome oxidase I gene. These species had proven to be variable in morphology in the past, and presented problems in their phenetic differentiation. They were distinctly separated in the present analysis. All five had close molecular similarities to an outgroup pogonophoran, supporting earlier findings of close relationship between vestimentiferans and pogonophores based on other gene sequences. An outgroup polychaete was much less similar in gene sequence to the five vestimentiferans.

Both cytochrome oxidase III and 16S rDNA sequences were used in examination of coleoid cephalopod phylogeny (Bonnaud et al 1996). Results were interesting, but inconclusive. They suggested that the Idiosepiidae were perhaps incorrectly placed amongst the Sepioidea, as they grouped consistently with the oegopsids in this analysis. The authors thought these results, which run contrary to all previous interpretations of this group, required further confirmation with an analysis of a larger suite of species. The results of the larger analysis (Bonnaud et al 1997) confirmed the placement of the Idiosepiidae. This broader analysis included a chiton, a bivalve, and a gastropod as outgroups. Although the analysis proved successful for the cephalopods, molluscan class relationships were not elucidated. Several groups proved more similar to *Drosophila* in this analysis than to other molluscan classes. This result suggests that the sequences used are not appropriate for class level investigations of molluscan phylogeny.

A combination of eye-lens protein and haemocyanin electrophoresis, immunologic, and mtDNA sequencing data were used in a further analysis (Boucher-Rodoni and Bonnaud 1996). The authors found that while electrophoretic and immunologic data were useful in separating species and grouping related species, they did not help generate phylogenetic hypotheses. Sequencing data, on the other hand, was quite useful for cladistic analysis.

Meyer and Bartolomaeus (1996) report on the ultrastructure and derivation of the hooked setae in oweniid polychaetes, and use these and associated characters to postulate a new annelid phylogeny. The suite of 8 characters they used in their analysis suggest that the Oweniida, along with the Terebellida, the Sabellida, and the Pogonophora comprise a clade differentiated from the remaining annelids. While this result is of

interest, an analysis based on so few characters is hardly persuasive.

The nomenclature of the worm-snail taxa proposed by Mörch has been reexamined and arduously clarified by Bieler (1996). Taxa in the families Vermetidae, Siliquariidae, and Turritellidae are included; and several names of California species are discussed.

Feeding behavior in the ophiuroid *Amphiura filiformis* was investigated by Loo et al (1996). They found the passive suspension feeding activities of this species difficult to model because of the complexity of flow around the arms, and the uncertainty of particle retention efficiency measurements. Their findings suggest that particle aggregates may be especially important as food sources for this species. Local species in this genus probably use a similar suspension feeding strategy under appropriate current conditions.

JUST PASSIN' THROUGH

Long-time SCAMIT friend and noted podophile (please note - this is the correct spelling) Dr. Jim Thomas was in Los Angeles recently, stopping on his way home to Florida from Australia. He had been down under for the previous month teaching a class, as he does every year, on a small island in the Great Barrier Reef. Although no longer associated with the Smithsonian, he remains very active in taxonomic pursuits. He is teaching at Nova University in Ft. Lauderdale, and conducting research at its Oceanographic Center in Dania, Florida. He can be contacted there at 8000 N. Ocean Dr., Dania, FL, 33004 or at thomasjd@ocean.nova.edu via e-mail. Jim now has the J. L. Barnard reprints. Those interested in them should contact him with requests.

During his visit he managed to meet with several local cronies, and was anxious for us all to see the new imaging system he has set up for working with amphipods (other applications are also possible). He may be able to give SCAMIT a presentation of the system later in the year. He also mentioned that his website now sports an interactive amphipod key. Try it at http://www.nova.edu/ocean/jthomas/apod.html.

1995 POLYCHAETE CONFERENCE

The collection of papers and abstracts from the 1995 Polychaete conference that was held in Qingdao, China are now available in the *Bulletin of Marine Science*, Vol. 60:2. It is available from:

The Editorial Office
Bulletin of Marine Science
Rosenstiel School of Marine and Atmospheric Science
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Miami, Florida 33149-1098

For those of you not getting a free copy the cost is $35.00 plus $5.00 handling and shipping. The issues will be shipped upon receipt of a check or money order.

FIT TO BE THAI-ED

While member Leslie Harris is just back from a trip to the MCZ and to France (notes on her trip will appear in a future issue), and Kirk Fitzhugh has just returned from a month in Taiwan, several other local worm-folk are preparing to head off to Thailand in August. Kirk will be going on this trip too, along with members Karen Green and Larry Lovell. All three will be participants in the joint Danish/Thai sponsored workup of the fauna of Phuket and environs. They are due to return at the beginning of September.

Danny Eibye-Jacobsen of the Zoological Museum, Copenhagen, is in charge overall. Large collections of shelf-benthos are already in existence, with more cruises planned. The shelf fauna was sampled last year, this year's target are slope depth communities. Preliminary

examinations show that perhaps 70% of the fauna remains undescribed. The joint project is designed to provide the taxonomic push necessary to get at least a majority of the fauna into the published literature.

Rapid descriptions and publication are required (the project expects submission for publication within one year). Another project priority is information exchange. Local taxonomists will work alongside the foreign ones to facilitate transfer of local knowledge to the visitors, and transfer of broader experience to the residents. The intent is formation of enough local expertise that further assistance from other nations (while still welcome) is not required. The project is scheduled to run for 5 years; this is it's second year.

EDITION 3 OF SCAMIT SPECIES LIST

While edition 3 of the SCAMIT species list is not due out for at least another six months we can not leave all the updates and emendations until the last minute. Vice President Don Cadien has put together a list of corrections and additions that we have accumulated so far. He circulated this list at the June meeting. Members that have anything to change or add should do so as soon as possible. We need all members to help with this. More input will produce a more complete list.

CORRECTION

There are a few corrections for the recently distributed SCAMIT membership list. Member Rick Rowe's e-mail address should read <r6r@mwharbor.sannet.gov> instead of <rgr....>. (And no, we don't know why Rick has the number 6 for a middle initial.) Also, Ron Velarde's phone number should be listed as (619) 692 - 4903. If anyone else notices a mistake or a change needs to be made to the membership list please let the secretary know and she will put a correction in the newsletter asap.

MINUTES FROM JUNE 9 MEETING

After a very brief business meeting, where all that was discussed has been mentioned previously in this newsletter, Ron Velarde (CSDMWWD) opened this month's meeting topic, scaleworms of the genus *Malmgreniella*. With both the published works of Pettibone (1993) and Ruff (1995) SCAMIT members have been trying to apply local fauna to the taxonomic keys and descriptions provided by these authors and not having great success. SCAMIT members have found a great deal of variability in some of the characters used to define the individual species.

Ron had those members present at the meeting make a list of the diagnostic characters used throughout the literature and used by members in their taxonomic work. We discussed which characters we had found variation in and which characters we had found distinction in. Those characters have been summarized into a working table for members to record their own observations. (Please see the table included at the back of this newsletter.) It is hoped that by using this table members will at least be consistent with their identifications. Perhaps in the near future SCAMIT will be able to decide which species descriptions fit our local animals and provisional voucher sheets can be done for those that don't.

The diagnostic characters used by Pettibone and Ruff for distinguishing between *Malmgreniella* species that seem to have the most variation are those that are concerned with soft body tissue. These include the cephalic lobes of the prostomium and the noto- and neuropodial lobes. The various shapes of these lobes that are described by Pettibone and Ruff are not only open to interpretation by the taxonomist, but also dependent on the preservation of the animal. For example, whether or not the cephalic lobes are truncated or peaked is difficult to decide when some worms have lobes that seem to be in between those two states. SCAMIT members present at the meeting felt that too much emphasis has been placed on these soft tissue parts. It was

decided that we should try to distinguish these animals based on setal types, elytra, and pigmentation, both on the elytra and the body. The placement of the eyes for these scaleworms also seems to be an inconsistent character that SCAMIT members have chosen not to use. A another table of common *Malmgreniella* species described from so. Calif. waters has been constructed to help members with comparisons. It is also included with this newsletter.

In the afternoon several specimens of *Malmgreniella* were examined from various locations. We first looked at a *M. nigralba* specimen of Leslie Harris' from the type location of Outer Piper's Lagoon in British Columbia. It fit the description of Pettibone (1993) and Ruff (1995) with its truncated cephalic lobes and distinct reticulation pattern on the elytra. The body was virtually colorless. The area of serration on the neurosetae was very long. The spinous bracts extended along the shaft of the seta almost to the base of the second tooth. These characters are also described for *M. nigralba*. This specimen came from a habitat of cobbles over sand at a depth of approx. 15-20 ft., which also fits the description.

We then compared 2 specimens from 100 ft. depth off Gaviota with Leslie's. Both specimens had the reticulation pattern on their elytra, but only one had truncated cephalic lobes, the other had what we all considered distinct peaks. Both specimens had pigmentation present on the prostomium posteriorly, which is not described for *M. nigralba*. The neurosetae seemed to match the description. However, the second tooth seemed much longer than that described. It was decided that this animal should be considered a provisional for now and a voucher sheet has been created for it and is included with this newsletter. It is commonly seen by the City of San Diego's taxonomists in their survey work. It may turn out that this animal is *M. nigralba*, but more comparisons need to be made.

The next specimen we examined was from San Diego and was identified by Ron Velarde as *M. sanpedroensis*. This specimen had distinct cephalic lobes, digitate supraacicular neuropodial lobes, a long secondary tooth on the neurosetae and spinules on the neurosetae almost to the base of the second tooth. The pigment on the elytra was dark and covered the posterior half of the scale and over the attachment scar. The prostomium also had pigment on the posterior half. This specimen was compared to one identified as *M. bansei* from Orange County by Larry Lovell, which was identical to the specimen from San Diego. Tony Phillips had a specimen from the SCBPP at 210m that also matched these two except for lighter pigmentation on the elytra and a slightly shorter second tooth on the neurosetae. He had originally identified this worm as *M. berkeleyorum*. All three specimens had light pigment on the top side of the dorsal cirrophores, which is similar to *M. sanpedroensis*. It was decided that all these specimens were probably closer to *M. sanpedroensis*, than *M. bansei* or *M. berkeleyorum*, but are still not a perfect match. This comparison greatly illustrates the problem with variation amongst these closely related *Malmgreniella* species that SCAMIT members have been dealing with.

The next two specimens examined were those identified as *M. baschi* and *M. scriptoria*. Both fit their descriptions and all members present at the meeting agreed that these were the only *Malmgreniella* species distinct enough to **not** cause confusion. *M. baschi* is the only species with unidentate neurosetae. *M. scriptoria* has very long dorsal cirri, which extend beyond the length of the neurosetae and distinct looking neurosetae. The neurosetae have spinules that reach all the way to the base of the second tooth. The primary tooth also has a distinct hook shape. All POTW agencies commonly report these 2 species in their benthic survey work.

The most confusing of the *Malmgreniella* species seems to be *M. bansei, M. macginitiei*, and *M. sanpedroensis*. Presently, there does not seem to be enough distinct characters to clearly separate

these three. Ron Velarde is going to try to get specimens of these three species from Gene Ruff for comparisons to help us resolve this problem.

The last specimen examined was from Cheryl Brantley (CSDLAC). This *Malmgreniella* specimen was very different and currently does not fit any description. It has very dark black pigmentation on the elytra and neurosetae with a very thick or wide second tooth. It also has very bulbous shaped supraacicular neuropodial lobes. Even though we have decided this is not a good character to use for identification purposes because it is a soft tissue part, the bulbous lobes are consistent throughout the body. They are very distinct and unlike anything described by Pettibone (1993). So far only one specimen like this exists. It was found at a depth of 30m off the Palos Verdes peninsula. If any more specimens are found that fit this description a voucher sheet will be issued.

CORRECTED NOTES

Member Tim Stebbins was kind enough to send along several corrections to the notes of the May meeting, as well as continuing developments on one of the species examined during that meeting. He noted that I incorrectly indicated the name of both the examined species. What was reported as "Lepidochitona interstinctus" should be *Lepidozona interstincta*. I also indicated that we had examined "Placiphorella sp A" when this animal should have been called *Placiphorella* sp SD1. Since the time of the meeting Tim has been in correspondence with Dr. Roger Clark, who has been examining the specimens and finds them to be his *Placiphorella mirabilis*. This and *P. atlantica* are known from deeper waters in southern California. *Placiphorella velata* is the inshore species, but is found primarily north of the Southern California Bight.

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PROVISIONAL SPECIES EQUIVALENCIES TO NEW SPECIES
From Taxonomic Atlas Vol. 11 - June 1997

Tanaids Existing Name	New Name
Araphura sp A	*Araphura breviaria* Dojiri & Sieg 1997
Araphura sp B	*Araphura cuspirostris* Dojiri & Sieg 1997
Araphura sp C	*Siphonolabrum californiensis* Dojiri & Sieg 1997
Leptognathia sp E	*Chauliopleona dentata* Dojiri & Sieg 1997
Tanaella sp A	*Tanaella propinquus* Dojiri & Sieg 1997
Typhlotanais sp A*, Leptognathia sp H	*Typhlotanais crassus* Dojiri & Sieg 1997 *Typhlotanais williamsi* Dojiri & Sieg 1997
Tanaidacea sp B	*Pseudotanais makrothrix* Dojiri & Sieg 1997
Leptognathia sp F, Cryptocope sp D	*Siphonolabrum californiensis* Dojiri & Sieg 1997
Cumaceans - Diastylidae	
Diastylis sp A, Leptostylis sp E	*Diastylis crenellata* Watling & McCann 1997
Diastylis sp B	*Diastylis santamariensis* Watling & McCann 1997
Diastylis sp E	*Diastylis quadriplicata* Watling & McCann 1997
Diastylis paraspinulosa aucct.	*Diastylis sentosa* Watling & McCann 1997
Leptostylis sp A	*Leptostylis calva* Watling & McCann 1997
Leptostylis villosa aucct.	*Leptostylis abditus* Watling & McCann 1997
-Leuconidae	
Epileucon sp A	*Leucon bishopi* Bacescu 1988
Leucon sp A	*Leucon falcicosta* Watling & McCann 1997
Leucon sp H	*Leucon declivis* Watling & McCann 1997
-Nannastacidae	
Campylaspis crispa/nr. crispa	*Campylaspis biplicata* Watling & McCann 1997
Campylaspis sp E	*Campylaspis blakei* Watling & McCann 1997
Campylaspis sp P	*Campylaspis maculinodulosa* Watling & McCann 1997
Procampylaspis sp A	*Procampylaspis caenosa* Watling & McCann 1997
Cumella sp A	*Cumella californica* Watling & McCann 1997

*=note: specimens identified as *Typhlotanais sp A* proved to belong to two different species, *T. crassus* and *T. williamsi*. Specimens at hand should be compared with the descriptions of both these species to determine the correct identification.

City of San Diego

PROVISIONAL SPECIES WORKSHEET

Provisional Name: *Malmgreniella sp A*
Authority:
Common Synonyms:

Taxon: Annelida:Polynoidae
Taxonomist: R.Rowe Date: 23 June 97

Specimen(s):

STATION	DATE	DEPTH	STORAGE LOCATION	VIAL #
ITP/Reg. 2027 rep.1	7/25/95	194ft.	DLZ #1051	
ITP/Reg. 2131 rep.1	7/17/96	208ft.	RGV pers. coll.	

Characters: (Based on first listed single specimen-see station data shown above- total length of approximately 23 mm. Illustrated pigmentation for elytra is based on the least faded sixth elytra found on the approximately one dozen individuals examined.)

Eyes: 2 pair, anterior larger

Cephalic lobe: broadly rounded, triangular, or truncate with variably developed "peaks" at anterolateral margin (see remarks)

Neuropodial supraacicular lobe: triangular to broadly digitate (see remarks and fig. 1)

Dorsal cirri, ventral cirri, tentacular cirri, and antennae with widely spaced digitate papillae (fig.1)

Elytra with underlying reticulation pattern (most visible in pigmented areas) (fig. 2)

Elytra pigment: nearly complete ring on the first, c-shaped pattern beginning on second and fading more posteriorly, some specimens with pigment spot overlying posterior area of attachment scar

Notosetae (middle parapod): ~50% thicker than neurosetae, number ~18, all end in blunt tip

Neurosetae (middle parapod): upper group (~6) entire and with many long spinules (fig.3): median group (~18) strongly bifid with long secondary tooth and spinules up to base of teeth (fig. 4); lower group (~6) weakly bifid to entire

Body pigmentation: speckling between posterior eyes on prostomium; some transverse banding on dorsum and ventrum of last few setigers

Illustrations:

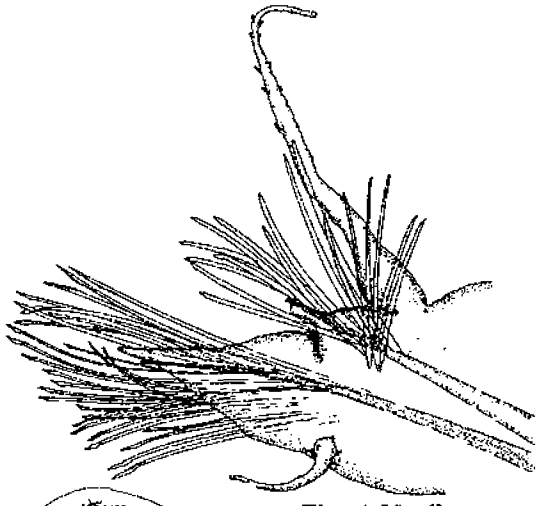


Fig. 1 Median parapod

Fig. 2 Elytra (setiger 6)

Fig. 3 Upper neuroseta

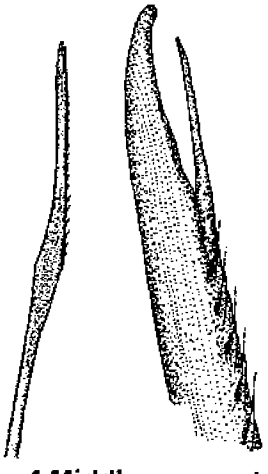


Fig. 4 Middle neuroseta

Related Species:

This species is very near to and may represent a southern variation of *Malmgreniella nigralba* (Berkeley, 1923) fide Ruff, 1995. That species is described with noto- and neurosetae of similar number and thickness; shorter secondary tooth on middle neurosetae (although a longer tooth for Calif. specimens is noted on pg.151); no pigment is illustrated between posterior eyes; and the supra-acicular neuropodial lobe is described (and illustrated) as broader and more rounded. The supraacicular lobes, (occasional) presence of cephalic peaks, and the elytral pigment (but not the reticulation) fit the description of *Malmgreniella macginitiei* Pettibone, 1993 fide Ruff, 1995 ppg. 147-149.

Remarks:

This voucher sheet has been produced to describe specimens encountered during the SCAMIT meeting of June 9, 1997 and additional specimens collected by the City of San Diego Ocean Monitoring Program. The typical specimen measured 20-25 mm. in total length, although many smaller and a few larger individuals have been collected.

The shape and interpretation of the shape of the cephalic peaks is variable. Specimens of this provisional species examined at the SCAMIT meeting had anterolateral margins of the prostomium that were triangular and obviously peaked to unpeaked and truncate. One specimen had a well formed peak on one side and truncate margin on the other. This character is apparently variable at least in preservation and especially in interpretation by different taxonomists.

The pigment on the elytra is most evident anteriorly and usually "faded" by the middle setigers. The pigment between the spot (when present) overlaying the attachment scar and the band parallelling the posterior margin is usually the first to fade. Many specimens have pigment remaining only along the posterior margin of the elytra by setiger 8-10. Some retain the spot of pigment overlaying the attachment scar through the middle setigers and other specimens possess a similar pigment spot only on the anteriormost setiger or two. The polygonal reticulation pattern is most obvious in the pigmented areas but is revealed readily by mounting the elytra and viewing with higher power on the compound microscope.

Distribution:

Near Santa Barbara to the Mexico border at shelf depths

References:

Ruff, R. E. 1995. Family Polynoidae Malmgren, 1867 Pp. 105-166 In Blake, J.A, B. Hilbig, & P. H. Scott (eds.). Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Vol. 5- The Annelida Part 2. 377pp.

Table of Characters . . *Malmgreniella* species

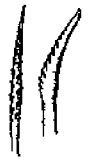
C. Bt. . y 12Jun97

SPECIES	Presence of eyes and their size	Cephalic lobe shape*	Noto-podial lobe shape*	Neuro-podial lobe shape*	Length and degree of papillation of tentacular, dorsal, and ventral cirri	Elytra-ornamentation, pigmentation, and shape	Shape of neurosetae and degree of serration	Setal diameter/ Setal counts	Body coloration and prostomial pigmentation	Other distinct features	Habitat and depth range	Station data

* NOTE: These characters are soft body tissue parts and are subject to much variation due to preservation.

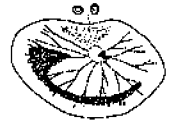
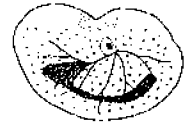
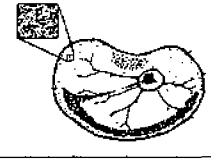
Table of Characters for So. Calif. *Malmgreniella* species

C. Brantley 12Jun97

SPECIES	Setal diameter/ Setal counts	Shape of neurosetae	Length of serration on neurosetae	Length and degree of papillation on tentacular cirri	Length and degree of papillation on dorsal (D) and ventral (V) cirri		
M. baschi Pettibone 1993	No=Ne 35-50:25-35	 (1)	Short; spinous bracts stop well below blunt tips	Both pairs twice prostomial length w/ scattered papillae	D- extend to tips of Ne. w/ scattered clavate papillae V- short w/ scattered pap.		
M. bansei Pettibone 1993	No=Ne 30-45:30-45	 (3)	Short; spinous bracts stop well below base of 2nd tooth	Both pairs slightly longer than prostomium w/ short papillae	D- extend to tips of Ne. sometimes farther w/ short papillae V - short w/ short papillae		
M. macginitiei Pettibone 1993	No>Ne 30-40:30-40	 (1)	Short; spinous bracts stop well below base of 2nd tooth	Upper pair slightly longer than median ant. w/ scattered pap. Lower pair shorter.	D- extend nearly to tips of Ne. w/ clavate papillae V- short w/ occasional papillae.		
M. nigralba (Berkeley, 1923)	No=Ne 15-25:30-45	 (1)	Long; spinous bracts extend to the base of the 2nd tooth	Both pairs slightly longer than prostomium w/ minute papillae	D- extend to tip of Ne. w/ short clavate papillae V- short w/ small papillae		
M. sanpedroensis Pettibone 1993	No>Ne 25-40:25-40	 (3)	Short; spinous bracts stop well below base of 2nd tooth	Upper pair slightly longer than lower pair and about the same length as prostomium with papillae.	D- extend to tip of Ne. w/ short clavate pap. V- short and papillate		
M. scriptoria (Moore, 1910)	No>Ne 10-25:15-30	 (1)	Long; spinous bracts extend to the base of the 2nd tooth	Upper pair longer than prost. with basal pigment and minute papillae. Lower pair slightly shorter.	D- extend beyond tips of Ne. with scattered small pap. and granules of brownish pigment. V- short with pigment granules basally.		
M. sp. A of SCAMIT 1997	No>Ne 18:6-18	 (4)	Long; spinous bracts extend to the base of the 2nd tooth	Longer than prost. with widely spaced digitate papillae.	D- extend to tip of Ne. w/ widely spaced digitate pap. V- short w/ widely spaced digitate pap.		

(1) from Ruff, 1995
(2) from Pettibone, 1993
(3) from Ruff NAMIT handouts, 1994
(4) from R. Rowe voucher sheet, 1997

Table of Characters for So. Calif. *Malmgreniella* species (con't)

SPECIES	Elytra-ornamentation, pigmentation, and shape	Body coloration and prostomial pigmentation	Other distinct features	Habitat and depth range		
M. baschi Pettibone 1993	 (1)	Post. dorsum & ventrum w/ transverse pigment bands. Mottled prost.	Dorsal cirrophores w/ black pigment on lower side. Tips of neurosetae are unidentate.	Commensal w/ *Ophiosila californica*; Shelf depths		
M. bansei Pettibone 1993	 (2)	Dark pigment at base of tentacular cirri and median antennae. No prost. pigment	Dorsal cirrophores w/ black pigment on upper side.	Mid-shelf 47-128m		
M. macginitiei Pettibone 1993	 (1)	Body dark or w/ dorsal and ventral transverse dark bands in posterior. Prost. w/ reddish-brown pigment in median furrow.		Commensal w/ *Axiothella rubrocincta*, *Amphiodia urtica*, *Callianassa californiensis*. Intertidal and shelf depths		
M. nigralba (Berkeley, 1923)	 (1)	Dorum and ventrum colorless or with pigment bands in posterior.		Commensal w/ *Leptosynapta clarki*. In coarse gravelly sand from low intertidal -100m		
M. sanpedroensis Pettibone 1993	 (2)	Body colorless. Rusty red pigment spots on styles of tentacular and dorsal cirri. Prost. w/o pigment.	Rusty red pigment spots on surface of elytra.	Upper slope depths at 400m		
M. scriptoria (Moore, 1910)	 (1)	Dorsum dusky brown or colorless. Prost. sometimes w/ reddish-brown pigment granules near anterior margin between post. pair of eyes.		Commensal with *Brisaster latifrons* in middle shelf to upper slope depths at 40+m		
***M.* sp. A** of SCAMIT 1997	 (4)	Some transverse banding on dorsum and ventrum of last few setigers. Speckling between posterior eyes on prost.		Near Santa Barbara to the Mexico border at shelf depths.		

(1) from Ruff, 1995
(2) from Pettibone, 1993
(3) from Ruff NAMIT handouts, 1994
(4) from R. Rowe voucher sheet, 1997