NOTES ON THE IDENTIFICATION OF NEMERTEA

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June 1997

Most keys rely to some degree on color and/or color patterns to differentiate between species. Unfortunately, nemertea often lose much of their natural coloration as a result of preservation. Thus, identifying to species level is not always reasonably achieved. However, many specimens will retain enough of the major color attributes to enable reasonable identification to species level.

Many nemertea will "self-destruct" (break into many pieces) when exposed to preservatives. Specimens which lack posterior body portions may not be identified below family or genus level (for instance, when needing to know the presence or absence of a caudal cirrus, or how far back the proboscis sheath extends). However, one may be able to piece specimens together upon careful examination of all nemertean material, enabling further identification of some specimens.

For Paleonemertea, differentiating between *Tubulanus* and *Carinoma* requires looking at cross sections of a posterior portion of the body to see if the lateral nerve cord remains imbedded in the circular muscle layer (*Tubulanus*), or is imbedded in the longitudinal muscle layer (*Carinoma*).

Identification of most Hoplonemertea requires observation of the number and pattern of ocelli (tiny dark eyespots imbedded in the head region), and sometimes also the structure of the stylet apparatus and accessory stylet pouches. The easiest way to observe these characteristics is to clear the specimens in oil of wintergreen. First, the specimens must be "dehydrated" by letting them sit in 95% ethanol for 10 to 30 minutes (depending on the size/thickness of the worm). Then transfer the dehydrated specimens to a small petri dish containing oil of wintergreen. After a few minutes (or longer for larger worms) the specimens will be "cleared" so that you can view the ocelli and internal structures needed for identification.

A "CHEAT SHEET" FOR IDENTIFYING COMMON SUBTIDAL NEMERTEAN GENERA OF THE NORTHEAST PACIFIC COAST

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(revised by Dean Pasko, CSDMWWD, February 1999)

1a. Mouth posterior to brain (i.e., not terminal) and separate from proboscis pore ..... Anopla[1] 2
1b. Mouth usually combined with the proboscis pore at or near the anterior end ..... Enopla[2] 8

2a. Without cephalic grooves; body wall musculature two-layered (outer circular and inner longitudinal) or three (outer circular, middle longitudinal, and inner circular).... Palaeonemertea 3
2b. With cephalic grooves; body wall musculature three-layered (outer longitudinal, middle circular, and inner longitudinal)..... Heteronemertea 6

3a. Mouth situated far behind brain (e.g., more than 5 body widths behind proboscis pore); head sharply pointed; body thin and elongate..... *Procephalothrix*
3b. Mouth situated immediately behind brain (e.g., 1-3 body widths behind proboscis pore); head not sharply pointed; body thin or robust 4

4a. Lateral sense organ present; body wall musculature three-layered (outer circular, middle longitudinal, and inner circular) 5
4b. Lateral sense organ absent; body wall musculature two-layered (outer circular and inner longitudinal); in the intestinal region (i.e., the posterior 2/3 of body) the lateral nerve cord is imbedded in the inner longitudinal muscle layer..... *Carinoma*

5a. Lateral nerve cord at base of outer circular muscle layer throughout the entire body ..... *Tubulanus*
5b. In the intestinal region (i.e., the posterior 2/3 of body) the lateral nerve cord is imbedded in the inner longitudinal muscle layer..... *Carinomella*

6a. Without caudal cirrus (posterior margin smooth); body generally soft; cephalic slit often (but not always) long and thin ..... *Lineus*
6b. With caudal cirrus (although it may be lost a remnant or scar will be present) 7

7a. Body generally rounded or oval in cross section throughout the length of the specimen, flattening slightly toward the posterior end; body generally soft to firm; cephalic slit generally short, shallow, and thin with rounded margins; mouth often small and slit-like..... *Micrura*
7b. Body markedly flattened in cross section toward posterior end, lateral margins thin; body quite firm; cephalic slit generally long, deep with thin margins; mouth often large..... *Cerebratulus*

8a. Generally with two ocelli (one pair) 9
8b. Generally with more than two ocelli (two or more pairs) 10

9a. With two large black eyes near the anterior margin (although numerous tiny black ocelli are present posterior to the large anterior-most pair in one morph)..... *Paranemertes californica*
9b. With two, crescent shaped red ocelli..... Hoplonemertea sp B MEC

10a. Generally with four ocelli .....
..... *Tetrastemma, Oerstedia, Prosorhochmus,* or other SCAMIT provisional species
10b. Generally with numerous ocelli .....
..... *Amphiporus, Zygonemertes,* or other SCAMIT provisional species

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[1] Numerous SCAMIT provisional species are not included. Please see the SCAMIT Species List, Edition 3, the Artificial Key To The Nemertea Found Off Point Loma (11/95), and SCAMIT voucher sheets for information of other possible species.

[2] Enopla must be cleared with oil of wintergreen to determine ocelli (eye) number and arrangement, and shape, size and position of stylet apparatus.