

LATERAL STAIN PATTERNS OF COMMON PALOS VERDES *SPIOPHANES*

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SPIOPHANES STAIN PATTERNS

- Focused primarily on Lateral Stains
- Observed four species common to LACSD Benthic Program
 1. *S. fimbriata*
 2. *S. berkeleyorum*
 3. *S. duplex*
 4. *S. kimballi*
- Quick overview for each one and then a side by side comparison

SPIOPHANES STAIN PATTERNS

- All photos by N. Lee
- LACSD specimen ID format:
 - MMY-Transsect and Isobath
 - Example: 0716-1B
 - “0716” denotes month and year of the survey
 - “1B” denotes transect 1 at the isobath B (~152m)
 - Nominal isobath depths of LACSD Benthic Program
 - A = 305m
 - B = 152m
 - C = 61m
 - D = 30m

Spiophanes fimbriata

- Usually deep water ~300m from LACSD records
- Nuchal organs thin and apart, extends to setigers 8-11
- 0+1 type chaetal spreaders
- Bell shaped prostomium
- Median antennae present

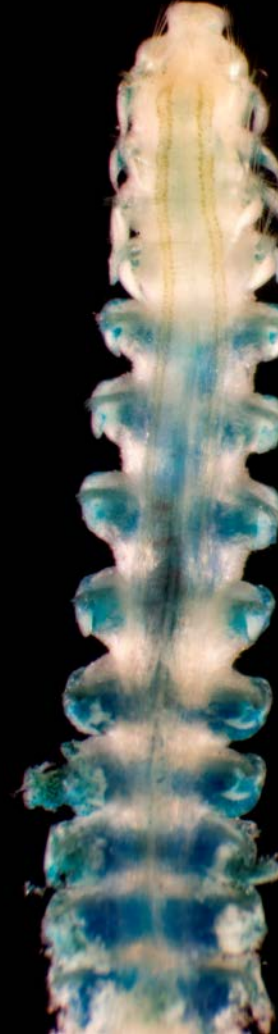
Methyl Green:

- 3 stripes ventrally
- Setiger 7 with a dark lateral bar on the posterior side of the parapodium
- Setiger 8-9 stain solidly

Spiophanes fimbriata - Dorsal View



0715-6A



0718-1A

Spiophanes fimbriata – Ventral View



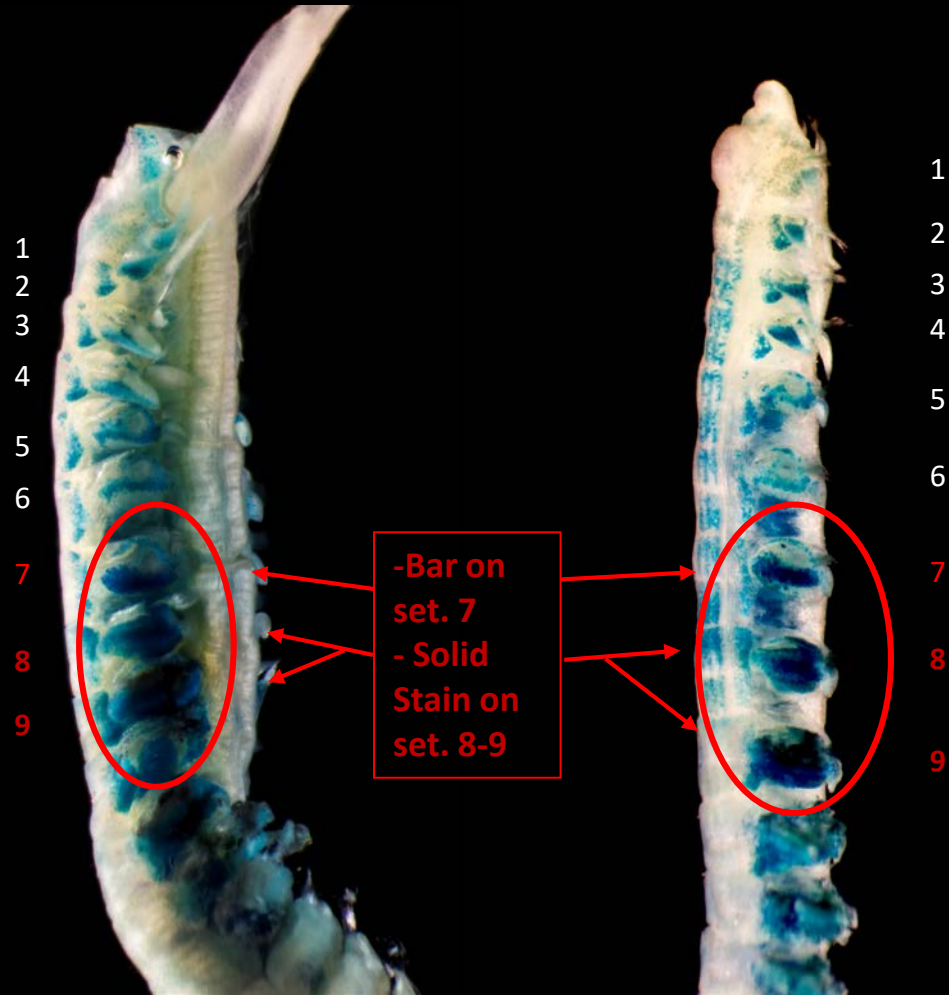
0715-6A



0718-1A

Spiophanes fimbriata – Lateral View

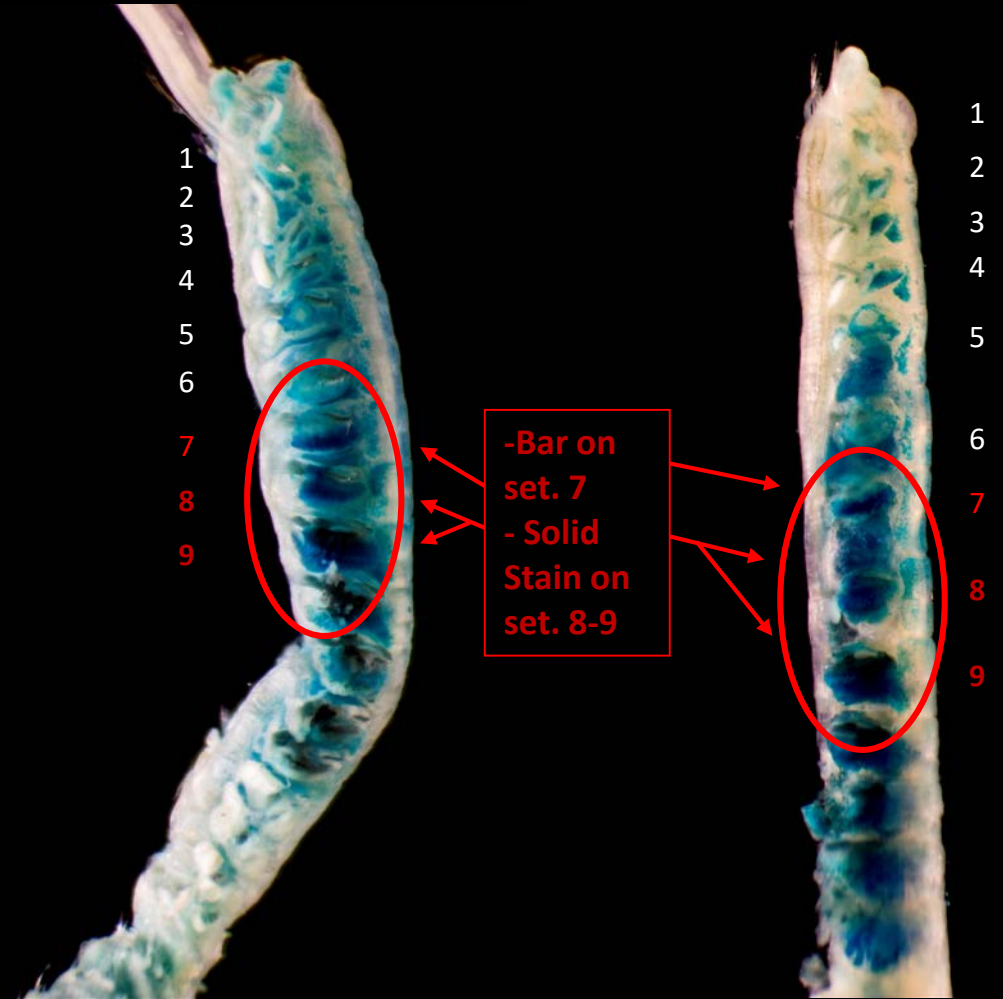
LEFT LATERAL



0715-6A

0718-1A

RIGHT LATERAL



0715-6A

0718-1A

Spiophanes fimbriata - Lateral View Set. 5-9

LEFT LATERAL



0715-6A

0718-1A

RIGHT LATERAL



0715-6A

0718-1A

Spiophanes berkelyorum

- Common at 150-30 meters from LACSD records
- Nuchal organs apart, converging into a “hourglass” shape at setiger 3-4 then spreading apart again extending to setiger 15
- 1+2 type chaetal spreaders
- Bell shaped prostomium
- Median antennae present

Methyl Green:

- 3 stripes ventrally
- Transverse ventral “T-shape” stain on setiger 8
- Dark lateral spot on setiger 8
- Setiger 9 with dark lateral bar on the posterior side of the parapodium

Spiophanes berkeleyorum - Dorsal View

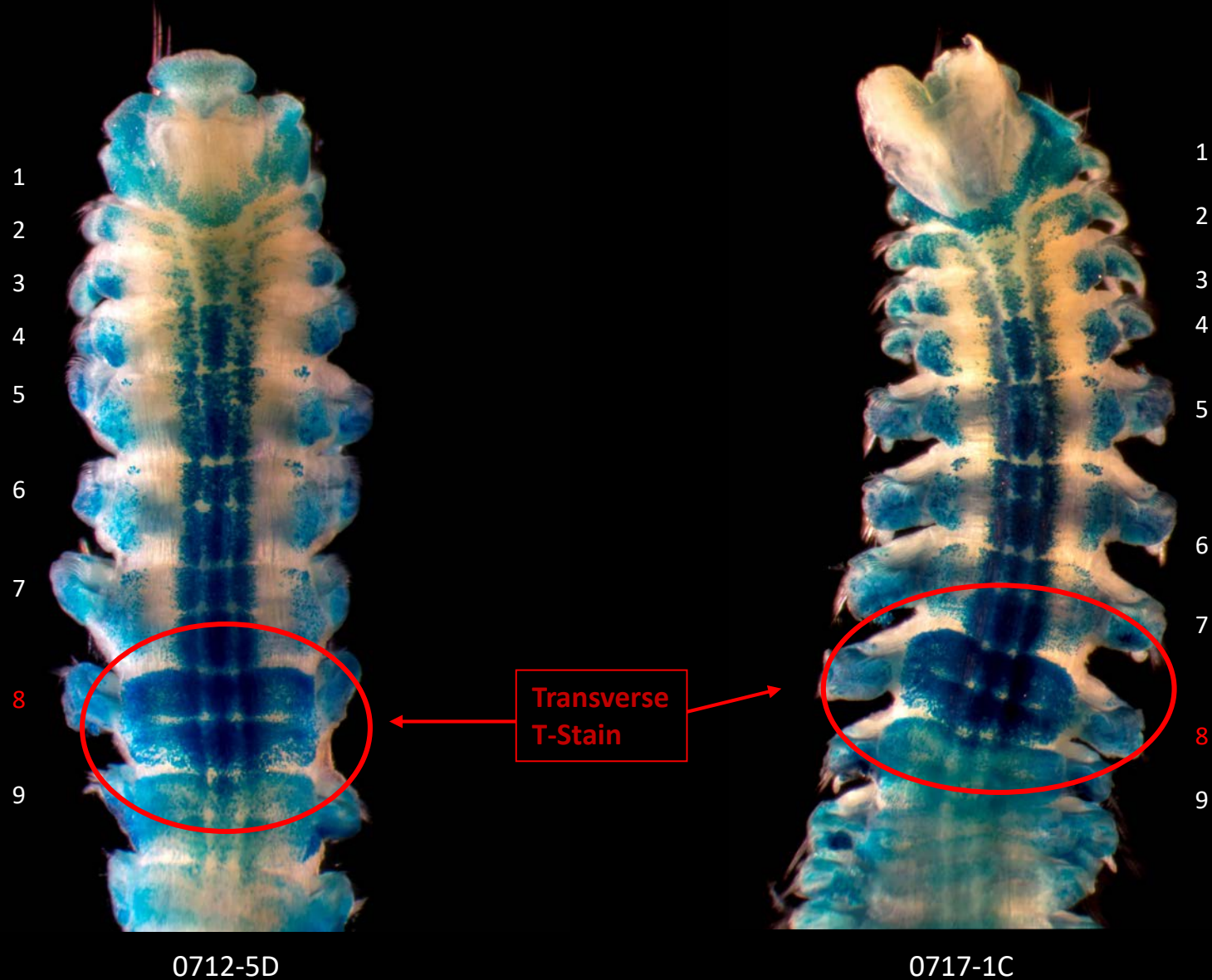


0712-5D



0717-1C

Spiophanes berkeleyorum – Ventral View



Spiophanes berkeleyorum - Lateral View

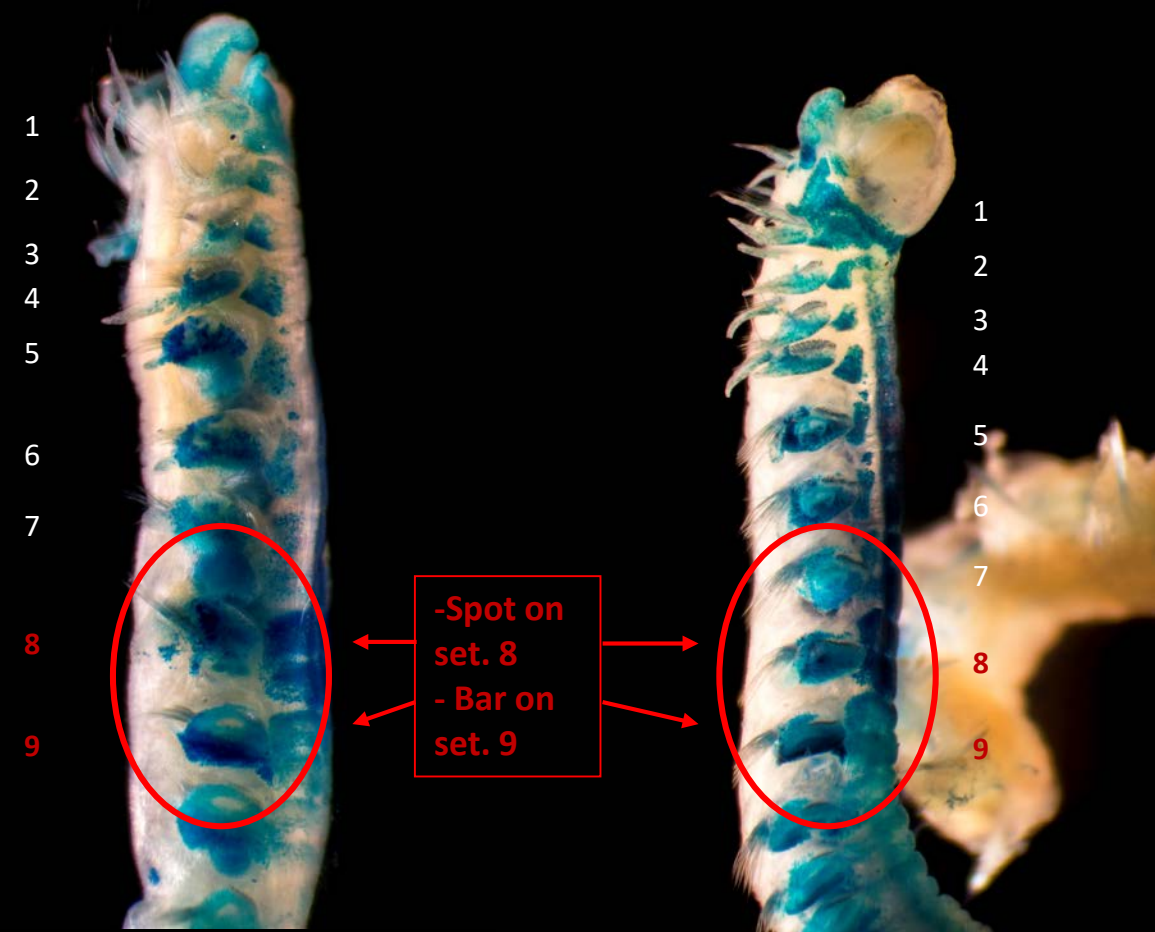
LEFT LATERAL



0712-5D

0717-1C

RIGHT LATERAL



0712-5D

0717-1C

Spiophanes berkeleyorum - Lat. View Set. 5-9

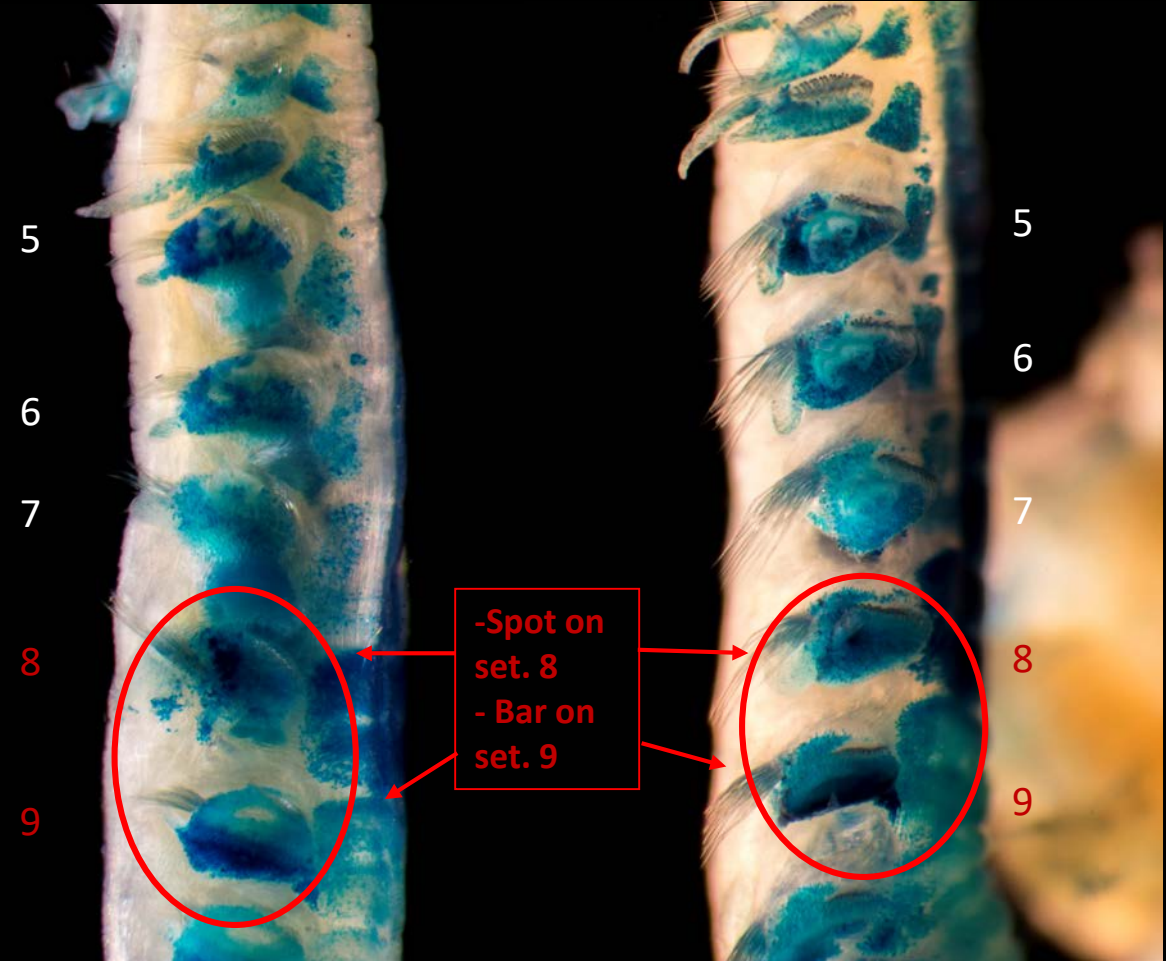
LEFT LATERAL



0712-5D

0717-1C

RIGHT LATERAL



0712-5D

0717-1C

Spiophanes duplex

- Common at 150-30 meters from LACSD records
- Nuchal Organs: 2 straight parallel lines together extending to setigers 13-14
- 2+3 type chaetal spreaders
- Bell shaped, semi-triangular prostomium, 2 pairs of eyes in trapezoidal arrangement
- Median antennae absent

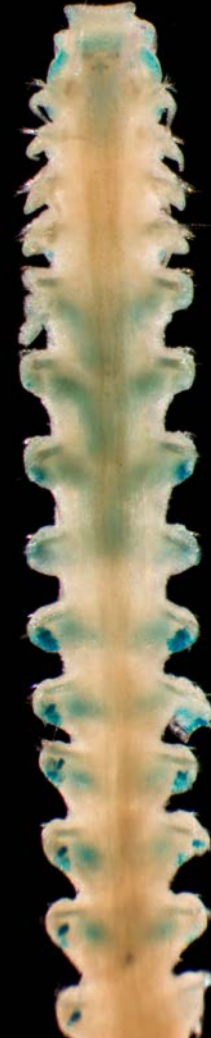
Methyl Green:

- Speckled/diffused ventral stripes starting around setiger 3 or 4
- Setiger 7 & 9 with dark lateral bars on the posterior side of the parapodia
- Lateral “Y” shaped wedge pattern on setiger 8 with the fork of the Y facing dorsally

Spiophanes duplex - Dorsal View

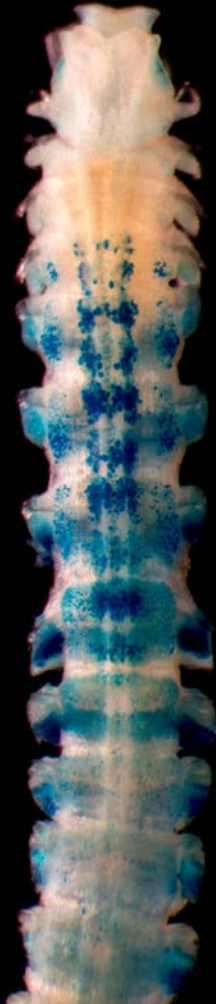


0714-1C

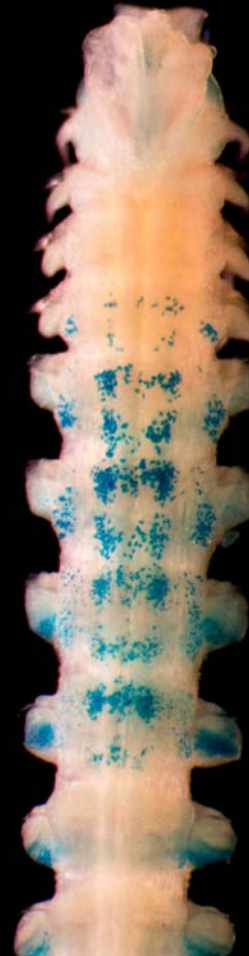


0716-0C

Spiophanes duplex - Ventral View



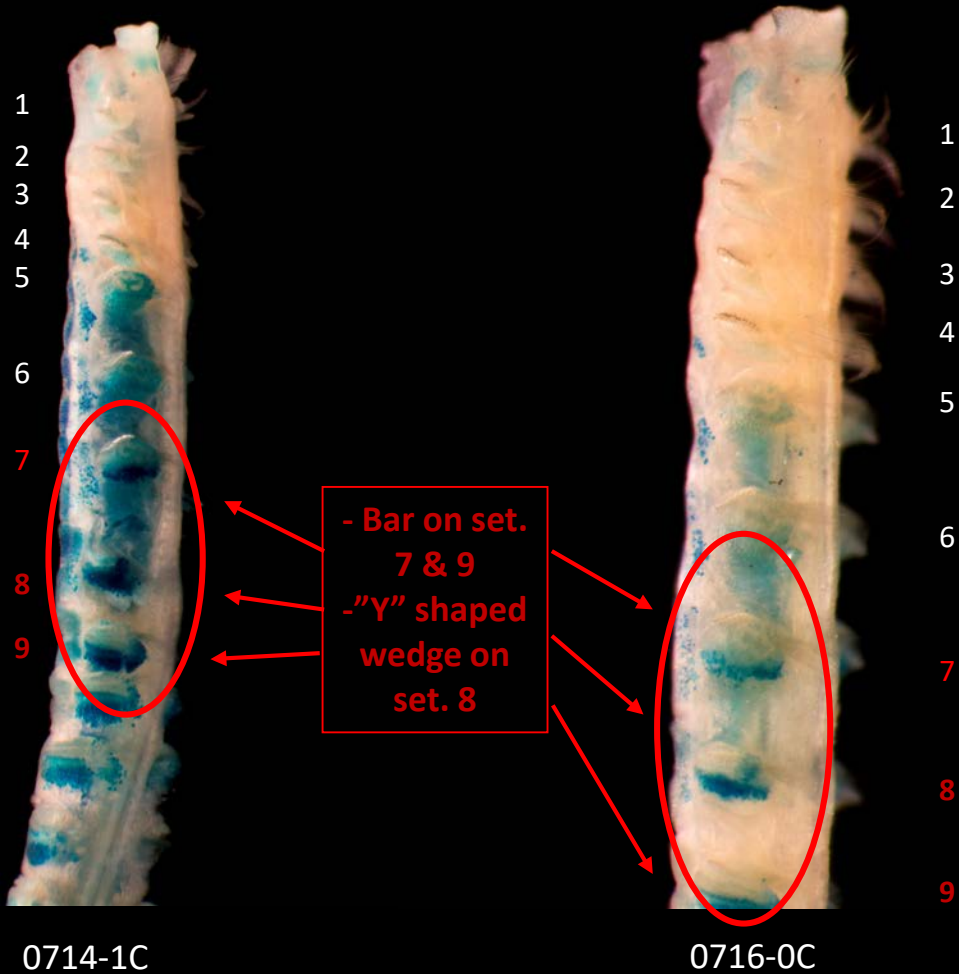
0714-1C



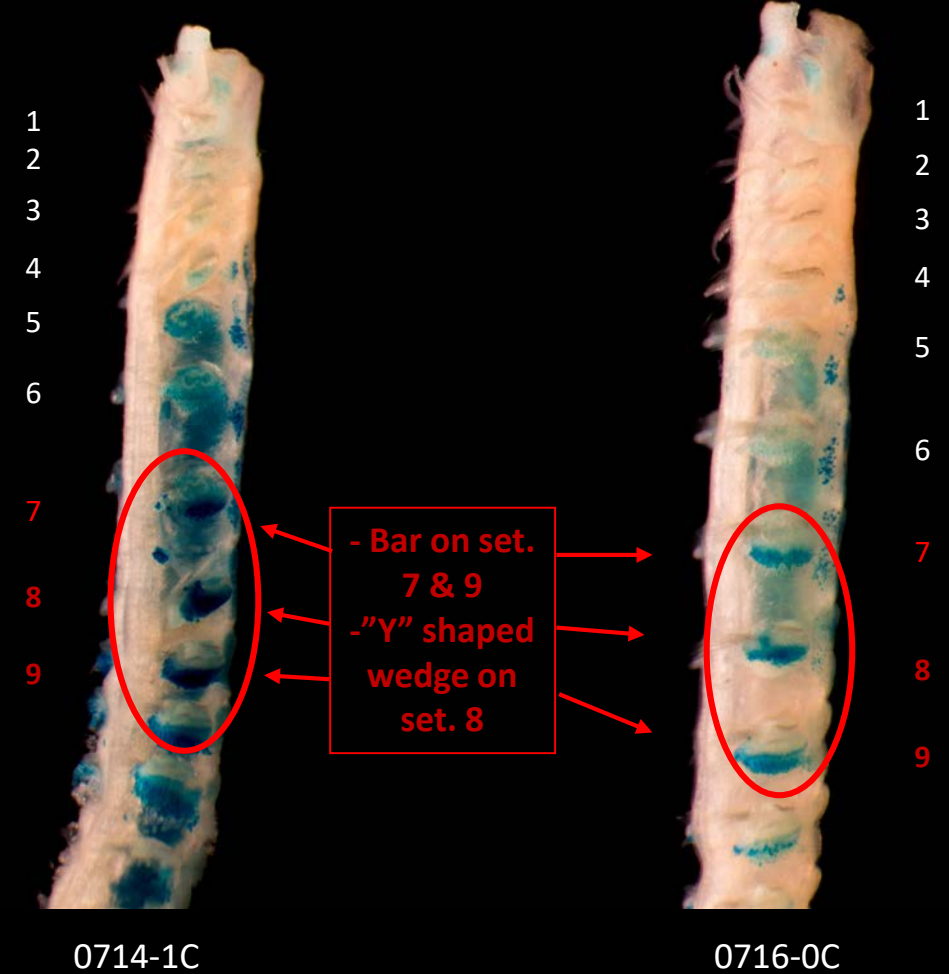
0716-0C

Spiophanes duplex - Lateral View

LEFT LATERAL

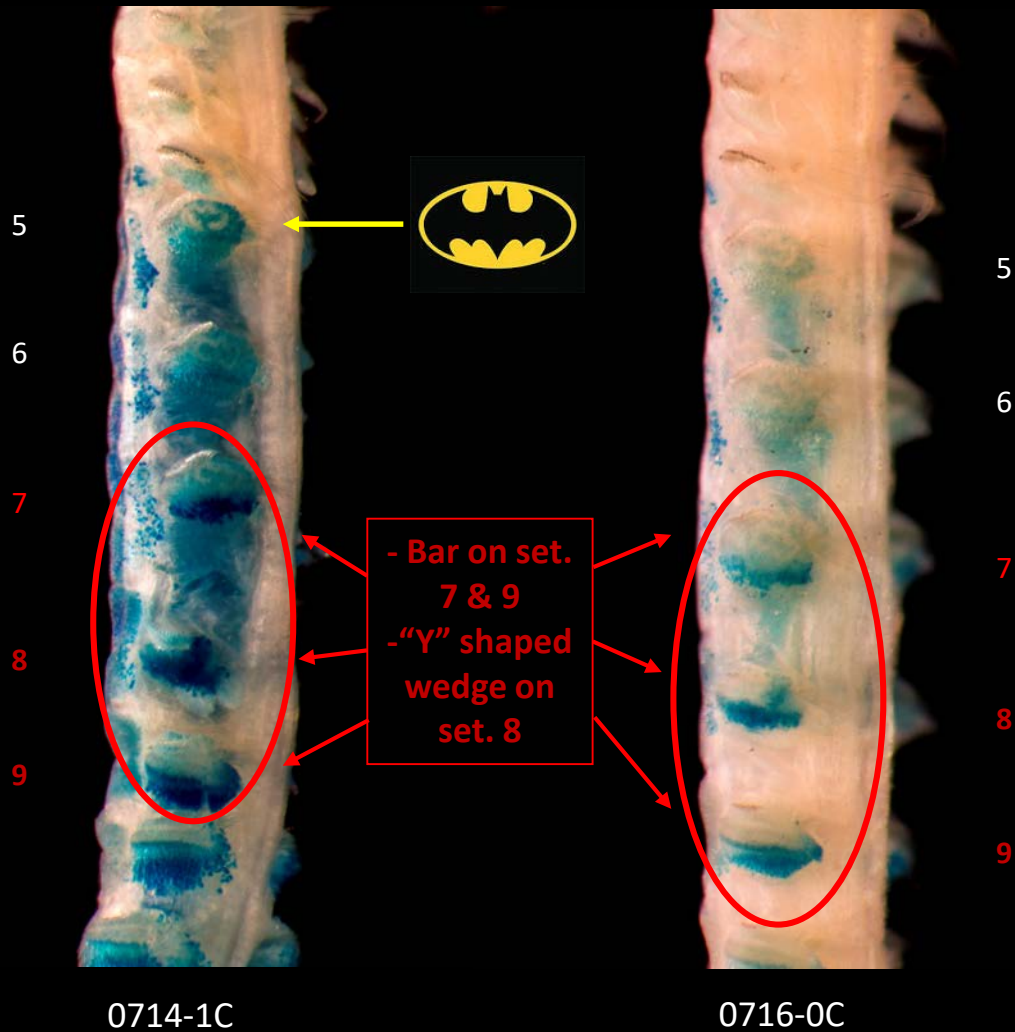


RIGHT LATERAL

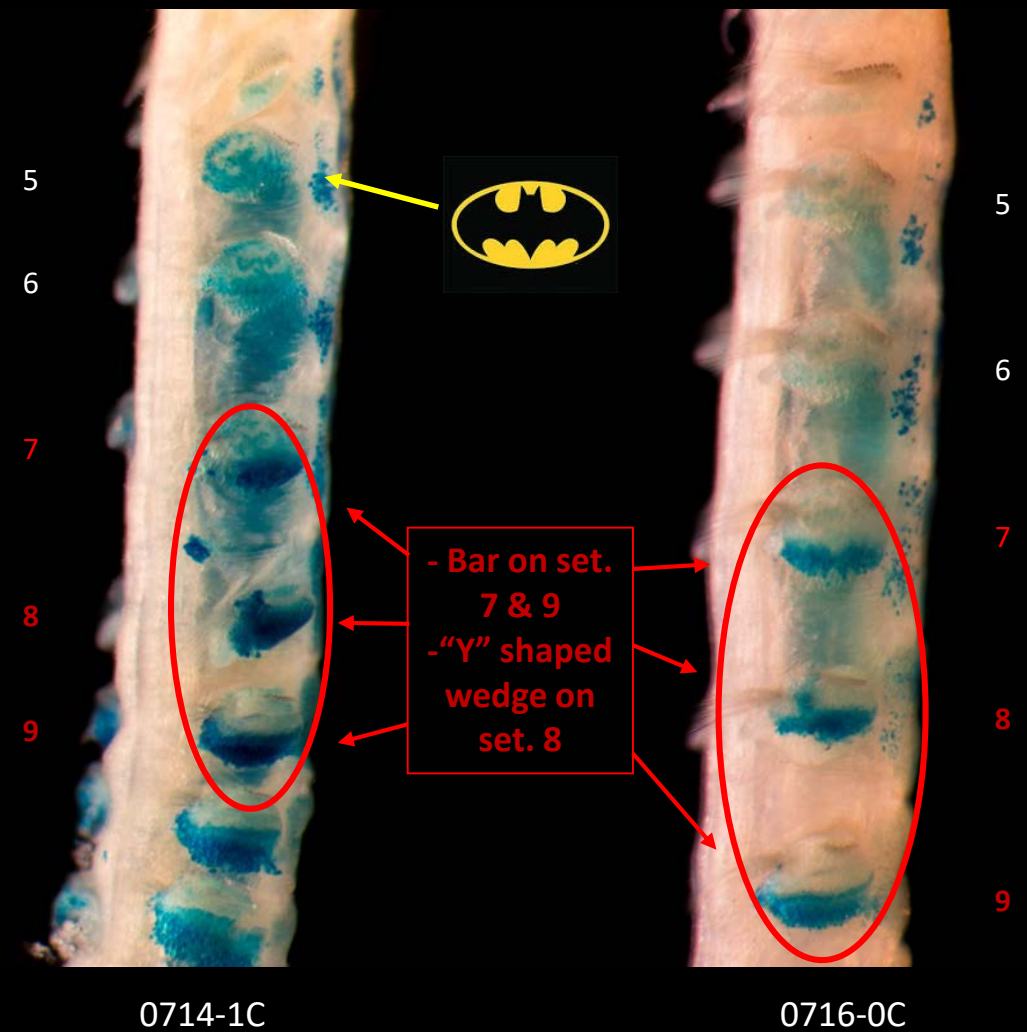


Spiophanes duplex - Lateral View Set. 5-9

LEFT LATERAL



RIGHT LATERAL



Spiophanes kimballi

- Occurs at all depths from LACSD records but more common in shallower depths 150-30m
- Nuchal Organs: 2 straight parallel lines together extending to setigers 12-13
- 2+3 type chaetal spreaders
- Subtriangular/bell shaped prostomium
- Median antennae present

Methyl Green:

- 3 stripes running ventrally
- Dark lateral spot on setiger 8

Spiophanes kimballi - Dorsal View



0714-8B



0718-2B

Spiophanes kimballi - Ventral View



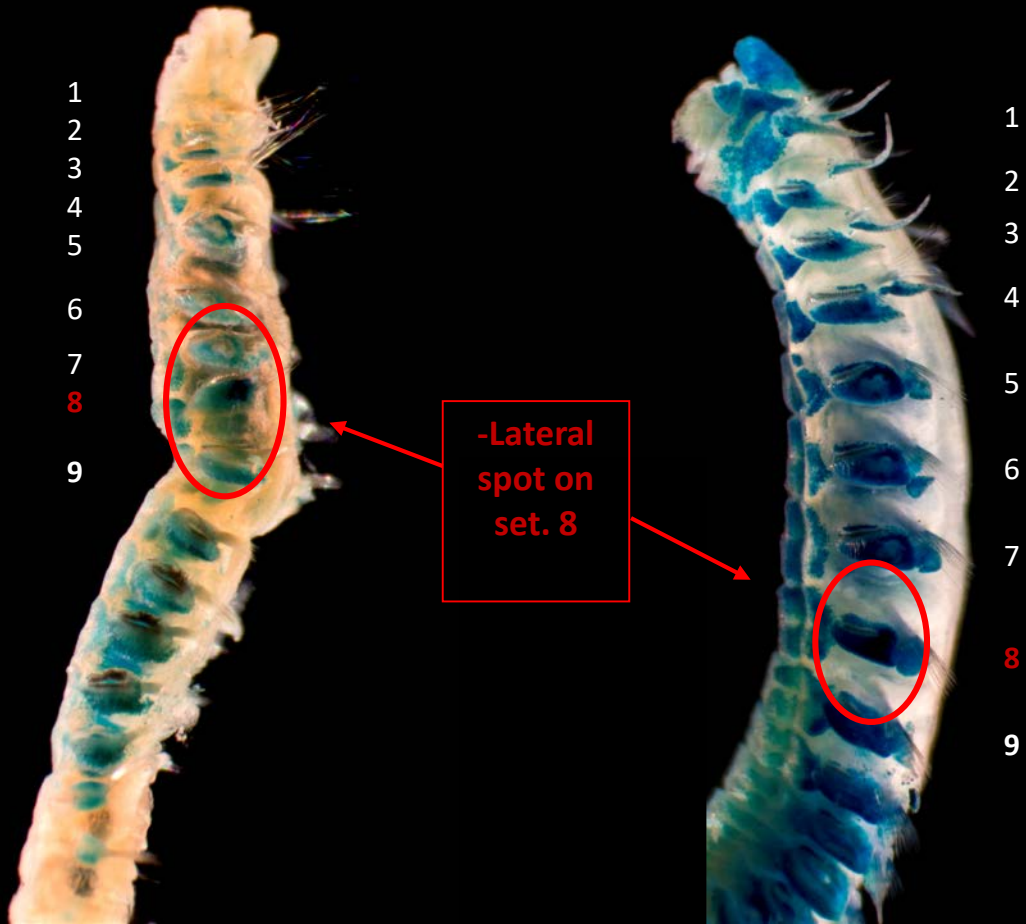
0714-8B



0718-2B

Spiophanes kimballi - Lateral View

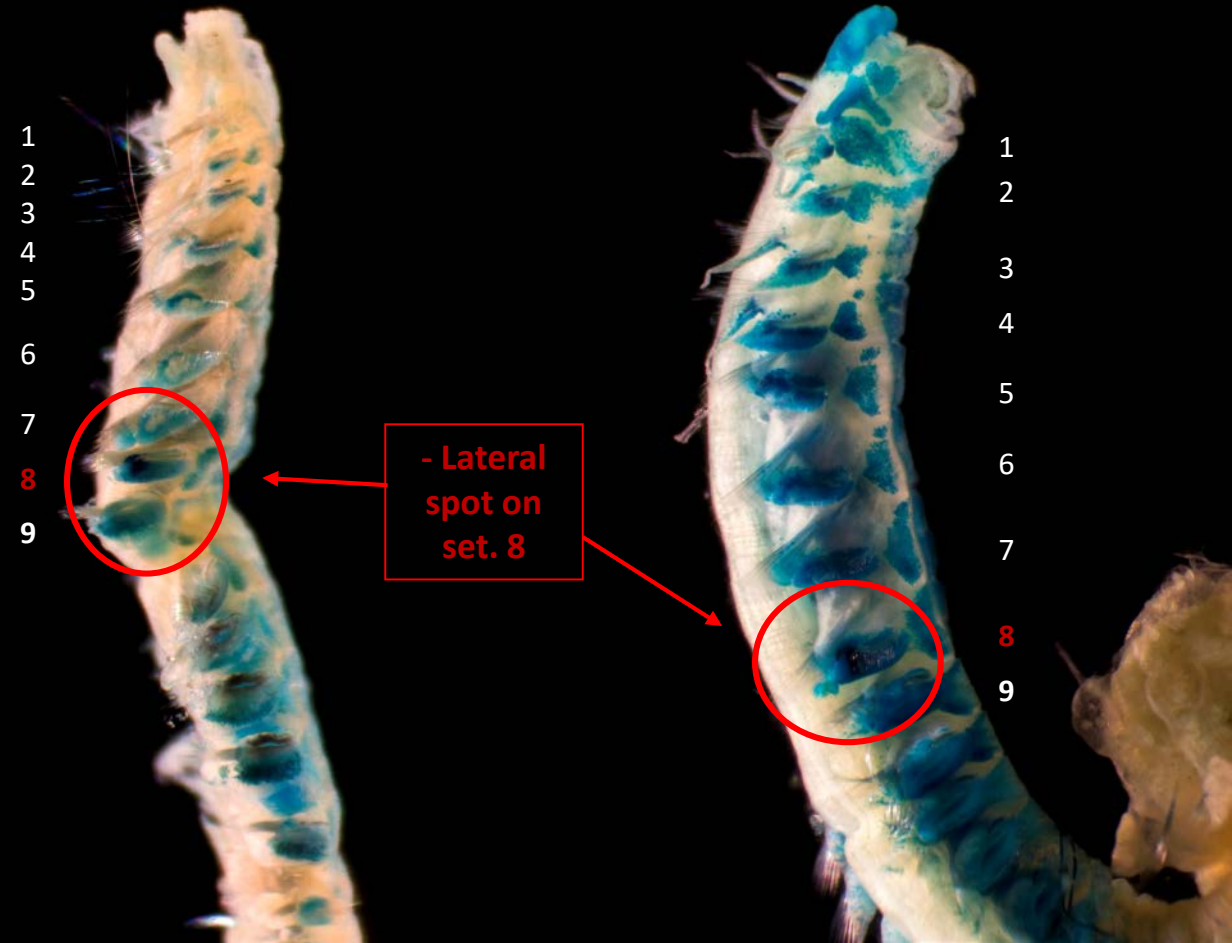
LEFT LATERAL



0714-8B

0718-2B

RIGHT LATERAL

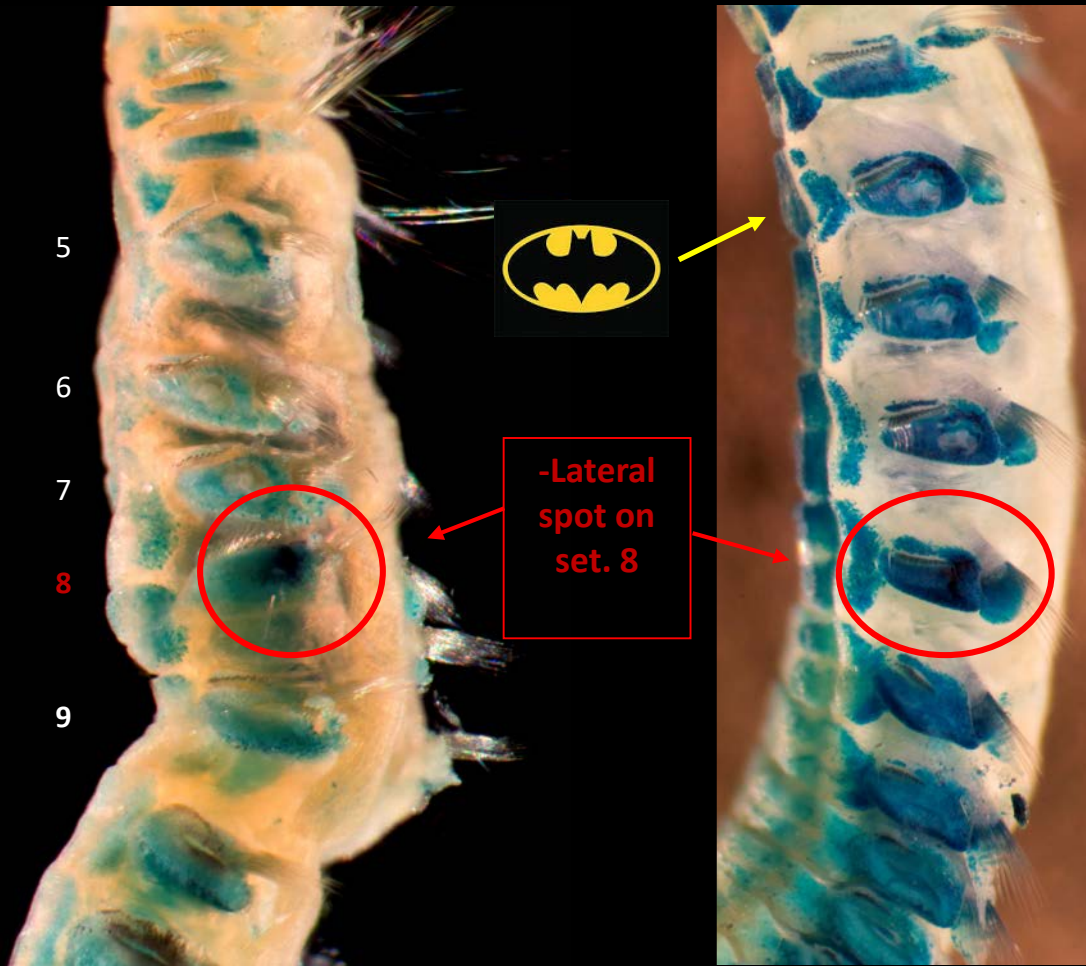


0714-8B

0718-2B

Spiophanes kimballi - Lateral View Set. 5-9

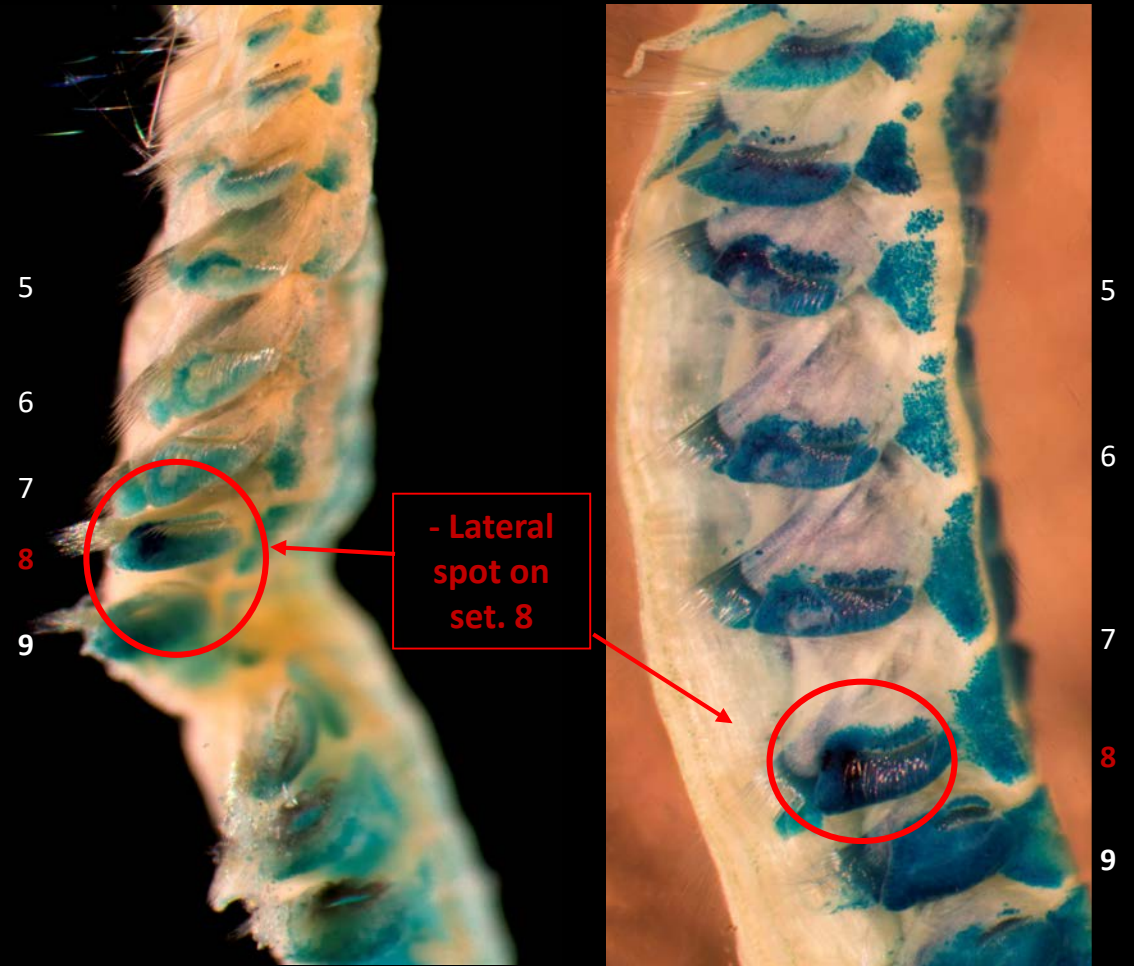
LEFT LATERAL



0714-8B

0718-2B

RIGHT LATERAL



0714-8B

0718-2B

Side-by-Side Comparison

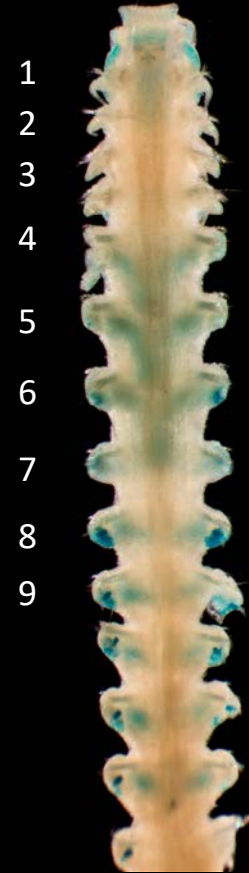
Dorsal View



Spiophanes fimbriata
0718-1A



Spiophanes berkeleyorum
0712-5D

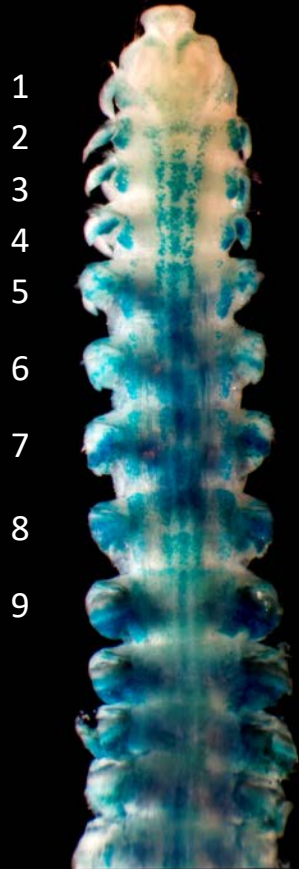


Spiophanes duplex
0716-0C

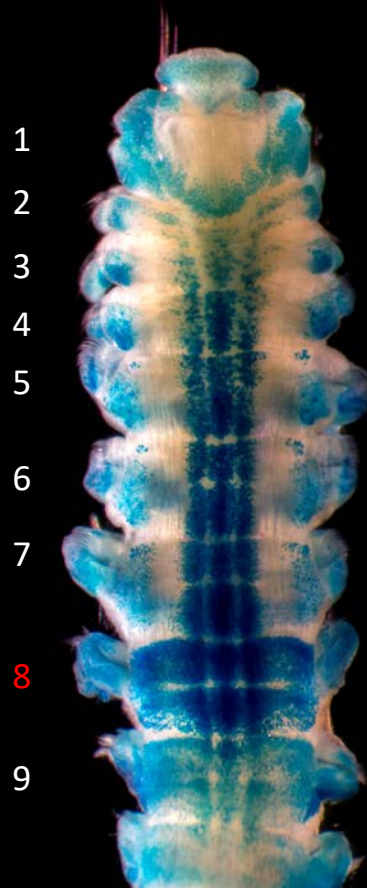


Spiophanes kimballi
0718-2B

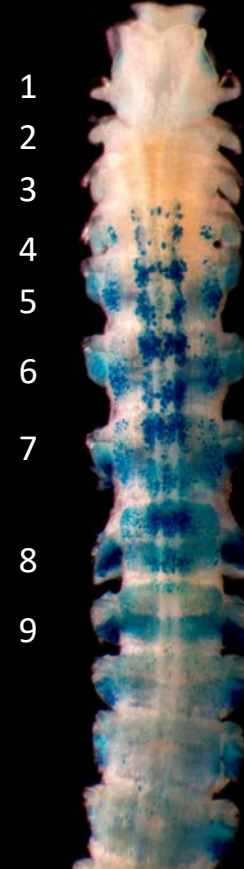
Ventral View



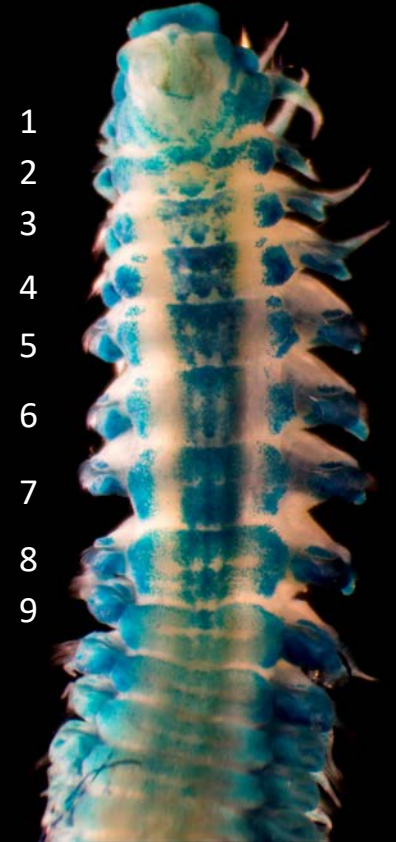
Spiophanes fimbriata
0718-1A



Spiophanes berkeleyorum
0712-5D

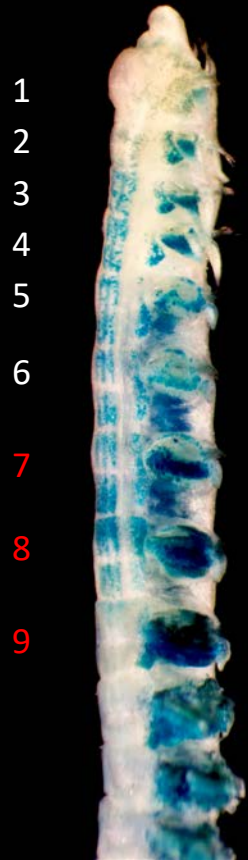


Spiophanes duplex
0714-1C



Spiophanes kimballi
0718-2B

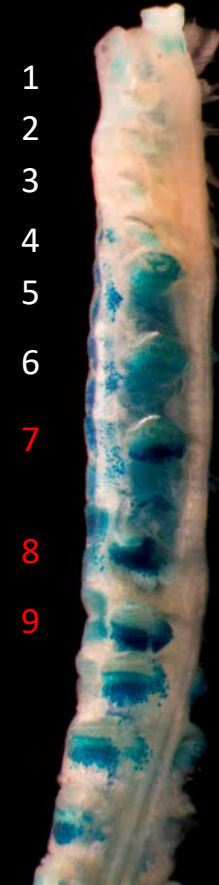
Left Lateral View



Spiophanes fimbriata
0718-1A



Spiophanes berkeleyorum
0717-1C

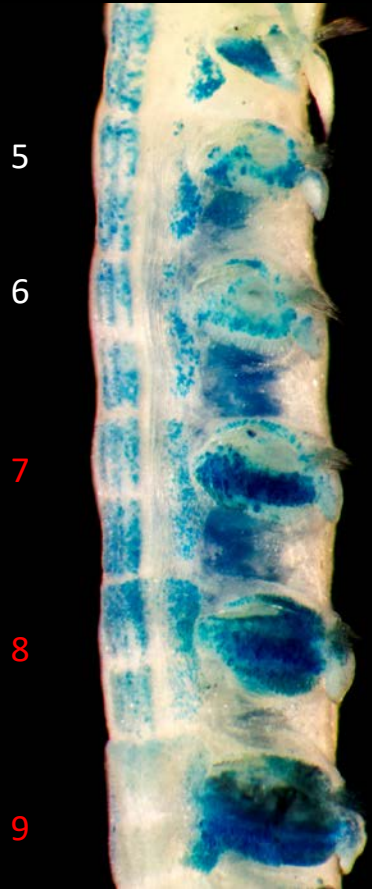


Spiophanes duplex
0714-1C

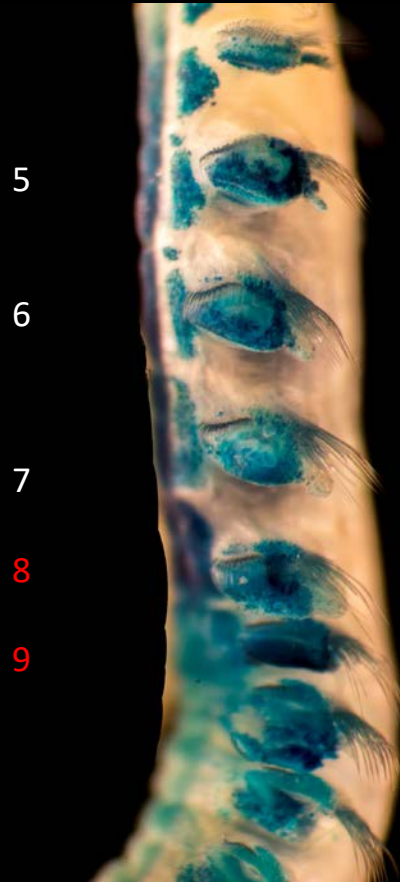


Spiophanes kimballi
0714-8B

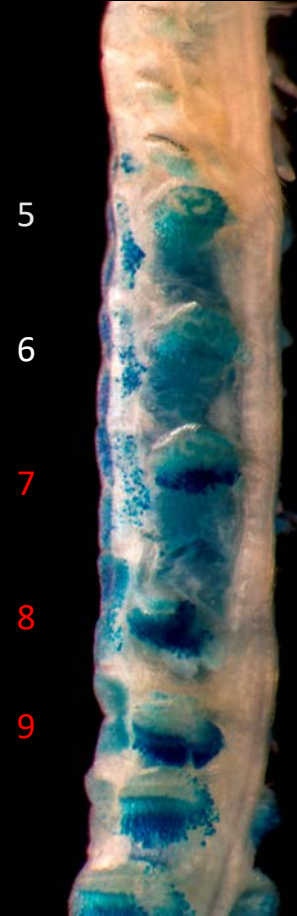
Left Lateral View: Setigers 5-9



Spiophanes fimbriata
0718-1A



Spiophanes berkeleyorum
0712-5D



Spiophanes duplex
0714-1C



Spiophanes kimballi
0714-8B

Character Table

Taxa	Prostomium Shape	Median antennae	Nuchal Organs	Chaetal Spreaders	M.G. Ventral Stain	M.G. Lateral Stain
<i>S. fimbriata</i>	Blunt horns, bell-shaped	Present	Apart, extends to setiger 8-11	0+1 type	3 ventral stripes	Setiger 7 w/ lateral bar; setigers 9-8 w/ solid stain on parapodia
<i>S. berkeleyorum</i>	Blunt horns, bell-shaped	Present	Apart, converges at setigers 3-4 then spreads apart again extending to setiger 12-15	1+2 type	3 ventral stripes w/ T- shaped transverse band on setiger 8	Setiger 8 w/ lateral spot; setiger 9 w/ lateral bar
<i>S. duplex</i>	Semi-triangular to bell-shaped	Absent	Straight parallel lines together, extends to setigers 12-13	2+3 type	Speckled stripes ventrally beginning around setigers 3-4	Setiger 7 & 9 w/ lateral bar; setiger 8 w/ Y-shaped wedge
<i>S. kimballi</i>	Blunt horns, bell-shaped	Present	Straight parallel lines together, extends to setigers 12-13	2+3 type	3 ventral stripes	Setiger 8 w/ lateral spot

CAVEATS

CAVEATS

- Observed different sizes and from different time periods
 - Lateral M.G. staining on specimens older than 8 to 10 years in our voucher collection is not as apparent as recent specimens
 - The staining is useful for identification completed within a shorter timeline
 - Hit or miss on smaller (<1.0 mm wide)* /juvenile specimens and larger specimens as well (>2.0-2.5mm)*
 - *Width includes parapodia
- If all else fails, use the hard characters to confirm the ID

Questions?

References:

- Hutchings and K. Meißner. 2003. Records of the Australian Museum 55: 117–140. *Spiophanes* species (Polychaeta: Spionidae) from Eastern Australia—with descriptions of new species, new records and an emended generic diagnosis.
- Meißner, K. 2005. Mitteilungen aus dem Museum für Naturkunde in Berlin, Zoologische Reihe 81(1): 3-65. Revision of the genus *Spiophanes* (Polychaeta, Spionidae); With new synonymies, new records and descriptions of new species.
- Norris, D. 2008. City and County of San Francisco Voucher Sheet for *Spiophanes berkeleyorum*
- Norris, D. 2008. City and County of San Francisco Voucher Sheet for *Spiophanes duplex*
- S. Douglass and K. Langan. 2003. Characters of *Spiophanes* species based on Karin Meissner's manuscript, "Identification guide to *Spiophanes* species from around the American continent".
- *Spiophanes* table. L. Lovell. <https://www.scamit.org/tools/toolbox-new/ANNELIDA/Class%20Polychaeta/Subclass%20Palpata/Order%20Canalipalpata/Suborder%20Spionida/Family%20Spionidae/-OTHER%20USEFUL%20TOOLS/Spiophanes%20table%20by%20Lovell.xls.pdf>
- SCAMIT List Ed. 12. 2018. <https://www.scamit.org/publications/SCAMIT%20Ed%2012-2018.pdf>