

PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTONSHIINOA ELAGATA, A NEW SPECIES  
OF PARASITIC COPEPOD (CYCLOPOIDA)  
FROM ELAGATUS (CARANGIDAE)

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I recently described *Shiinoa inauris* Cressey and the male of *S. occlusa* Kabata from Atlantic and Pacific specimens of *Scomberomorus* respectively. Subsequent to the submission of that manuscript a third species was collected by Hillary Boyle from the nasal lamellae of the carangid *Elagatus bipinnulatus* (Quoy and Gaimard) from various Pacific localities. The hosts are in the collections of the California Academy of Sciences and I wish to thank Dr. William Eschmeyer for allowing Ms. Boyle to examine them for parasites. I examined a few specimens of Atlantic *Elagatus* in the Smithsonian collections but did not recover any further material. Examination of more Atlantic *Elagatus* might produce additional *Shiinoa*, as did the examination of Atlantic *Scomberomorus* cited above.

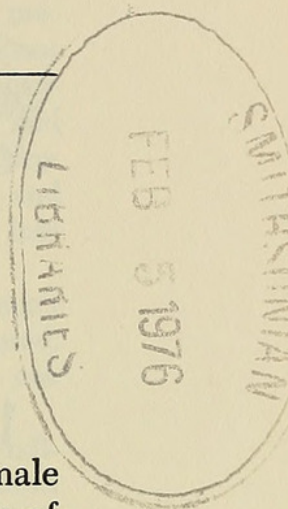
All drawings were made with the aid of a Wild Drawing Tube.

All material has been deposited in the collections of the Smithsonian Institution.

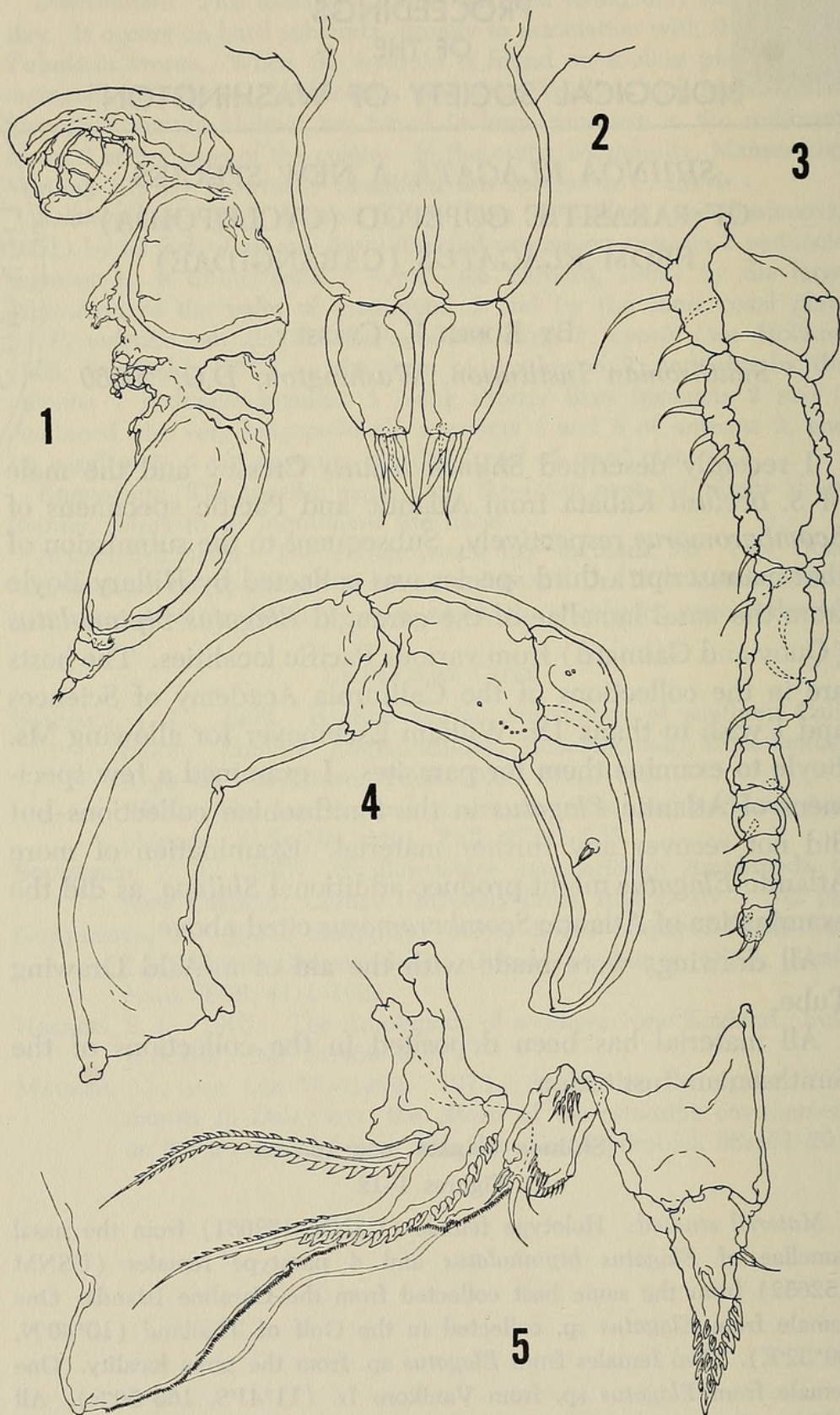
***Shiinoa elagata***, new species

Figures 1-12

*Material studied*: Holotype female (USNM 152651) from the nasal lamellae of *Elagatus bipinnulatus* and 4 paratype females (USNM 152652) from the same host collected from the Caroline Islands. One female from *Elagatus* sp. collected in the Gulf of Thailand (10°40'N, 99°32'E). Two females from *Elagatus* sp. from the same locality. One female from *Elagatus* sp. from Vanikoro Is. (11°41'S, 166°50'E). All additional material collected from the nasal lamellae of the host.









*Description:* Female.—Body form as in Fig. 1. Total length, 1.9 mm; greatest width, 1.25 mm, measured at widest part of genital segment. Body form more robust than *S. inauris* and *S. occlusa*. Rostral area produced anteriorly, curved ventrally, covering recurved second antennae as in other *Shiinoa* species. Cephalon posterior to second antennae constricted, followed by laterally expanded area bearing mouthparts and first legs. Cephalon comprising about  $\frac{1}{2}$  body length. Thoracic segments bearing second and third legs short, narrower than preceding and following segments with third leg appearing to be incorporated into genital segment ventrally.

Genital segment expanded laterally (see Fig. 10), somewhat longer than wide ( $1.3 \times 1.2$  mm). Abdomen (Fig. 2) segmentation obscured. Caudal rami (Fig. 5) longer than wide ( $171\mu \times 112\mu$ ), bearing one lateral, one subterminal, and 4 terminal setae; all setae naked.

First antenna (Fig. 3) 7-segmented with short naked setae as indicated in figure, aesthaete present on last segment (seen in young forms only). Second antenna (Fig. 4) recurved within rostrum, terminal half with hyaline sheath, basal segment with 2 short, blunt setae along inner edge as indicated in figure, terminal segment with single short seta. Mouthparts (Figure 5) somewhat removed from first and second antennae and situated on ventral protuberance (see Fig. 1). Mandible terminating in long flagellum bearing stout pyriform spines along outer edge and smaller spinules along inner; inner seta arising near base of flagellum bearing spines on outer and inner edges. First maxilla, small, with 3 terminal setae and spinules as indicated in figure. Second maxilla terminating as stout heavily spinose process with 2 setae near base of spinose area. Maxilliped absent.

First leg (Fig. 6) with 3-segmented rami; exopod first and second segments with short spine on outer distal corner, last segment with 3 terminal spines and 3 short inner setae; endopod first segment with short seta on inner distal corner, second segment with prominent spinelike process on outer distal corner, last segment with 2 terminal prominent spinelike processes and 3 short inner setae; outer edges of both rami with spinules. Second leg (Fig. 7) as in first leg except exopod second segment with inner seta and small patch of spinules on basipod. Leg 3 (Fig. 8) uniramous, bearing 2 terminal spines, 1 seta, and patches of spinules as indicated in figure. Legs 4 and 5 absent. Leg 6 (Fig. 9) represented by sclerotized area bearing 1 short seta and 1 short spine at area of egg sac attachment.

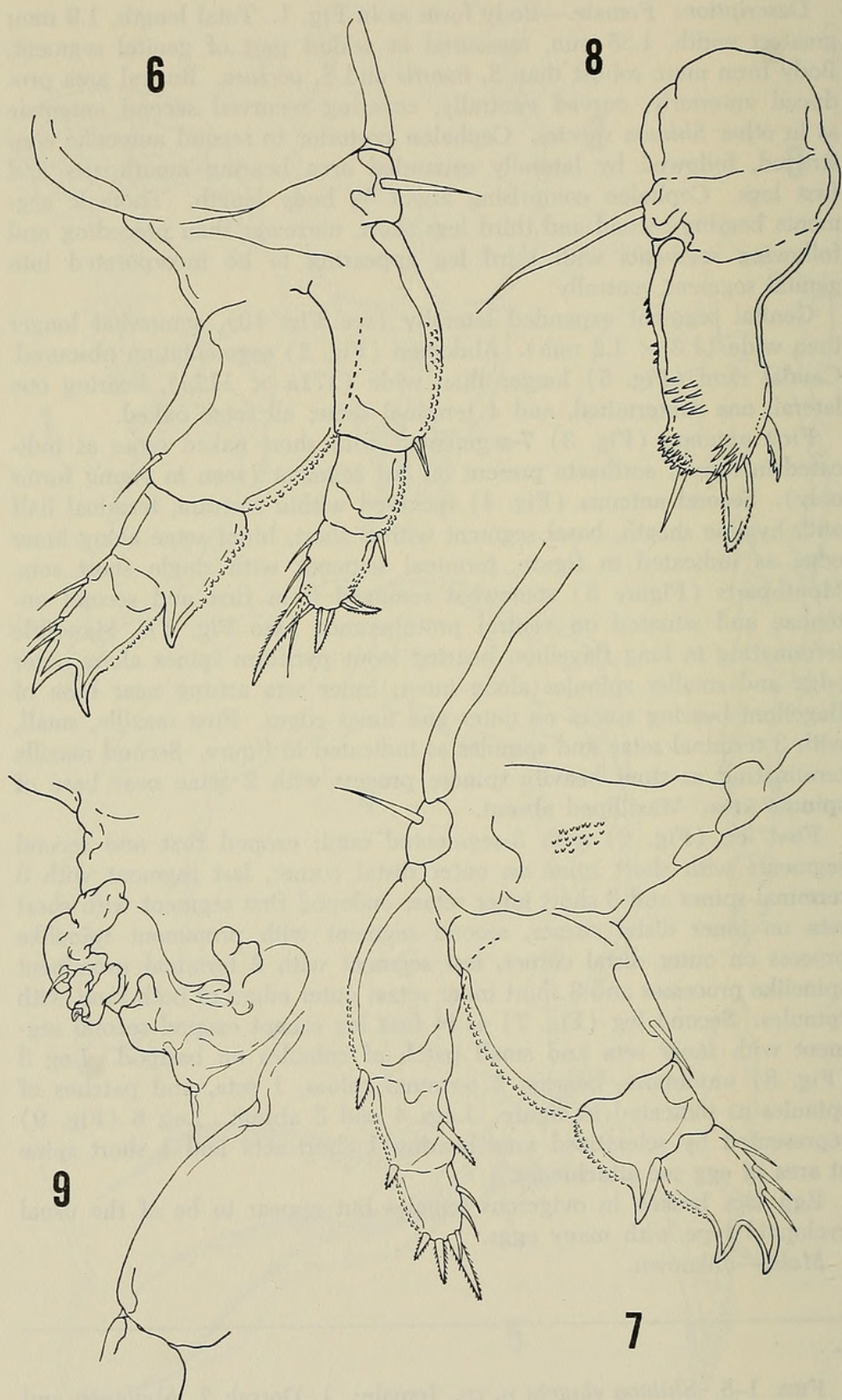
Egg sacs broken in ovigerous females but appear to be of the usual cyclopoid type with many eggs.

*Male*.—unknown.

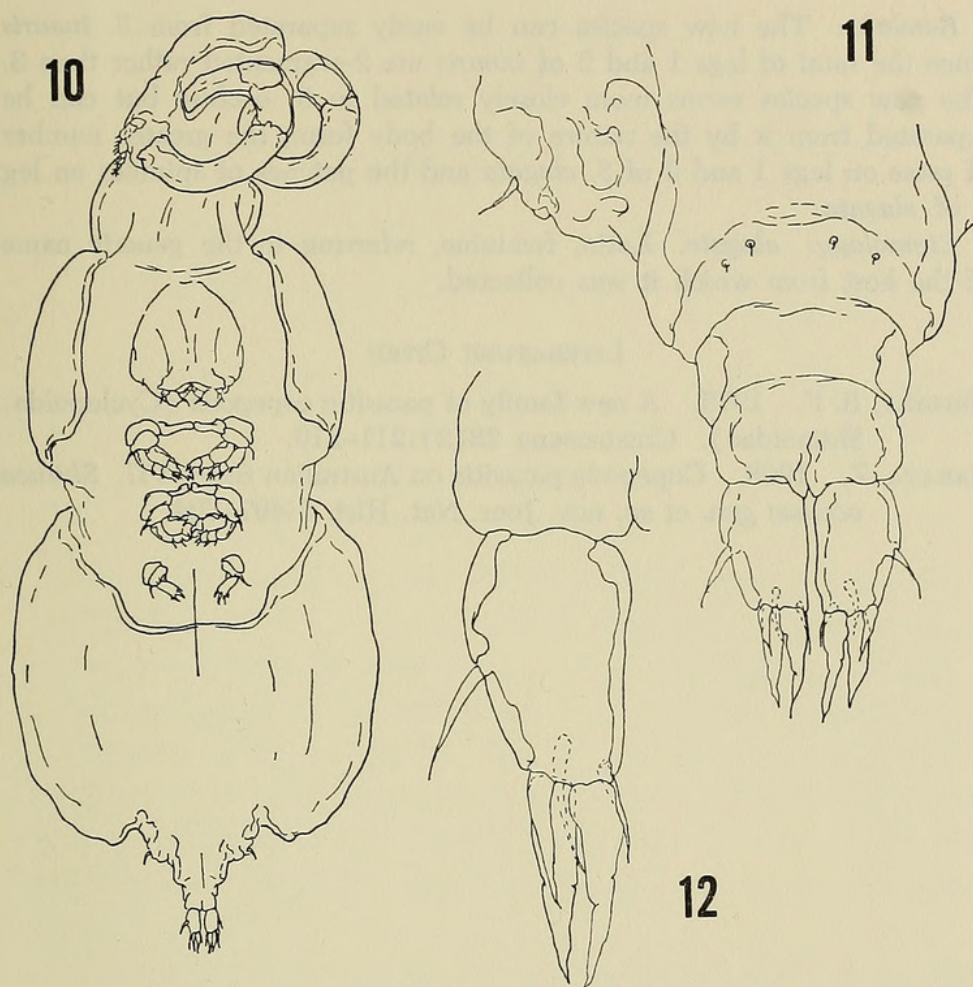
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FIGS. 1–5. *Shiinoa elagata* n. sp., female: 1, Dorsal; 2, Abdomen and caudal rami; 3, First antenna; 4, Second antenna; 5, Mouthparts.









FIGS. 10-12. *Shiinoa elagata* n. sp., young female: 10, Ventral; 11, Abdomen, ventral; 12, Caudal ramus, ventral.

*Young female*.—a few specimens of smaller non-ovigerous females are present in the material examined and these forms exhibit a few differences from the mature females as follows; the ventral aspect (Fig. 10) was drawn from a young female but its general body form does not differ from the mature specimens. The abdomen (Fig. 11) segmentation is more distinct. The caudal rami (Fig. 12) each bear a lateral seta and 2 additional terminal setae. The first antenna bears more setae terminally (at least 7) and an aesthaete. The knobs present along the outer margins of the rami of legs 1 and 2 are pointed spinules in the younger forms.

←

FIGS. 6-9. *Shiinoa elagata* n. sp., female: 6, First leg; 7, Second leg; 8, Third leg; 9, Sixth leg and area of egg sac attachment.



**Remarks:** The new species can be easily separated from *S. inauris* since the rami of legs 1 and 2 of *inauris* are 2-segmented rather than 3. The new species seems more closely related to *S. occlusa* but can be separated from it by the nature of the body form, the greater number of setae on legs 1 and 2 of *S. elagata* and the patches of spinules on leg 3 of *elagata*.

**Etymology:** *elagata*. Latin, feminine, referring to the generic name of the host from which it was collected.

#### LITERATURE CITED

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- KABATA, Z. 1968. Copepoda parasitic on Australian fishes VII. *Shiinoa occlusa* gen. et sp. nov. *Jour. Nat. Hist.* 2:497-504.



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