
Scolelepis foliosa

A very large spionid polychaete

Phylum: Annelida
Class: Polychaeta
Order: Canalpalpita, Spionida
Family: Spionidae

Taxonomy: The taxonomic history of this species is extensive and has yet to be fully resolved. The genus *Scolelepis* has many synonyms including *Aonis*, *Nerine*, *Pseudomalacoceros*, *Nerinides*, *Scolecopsis* and *Pseudonerine* (Pettibone 1963). Furthermore, several subgenera have been proposed for *Scolelepis*. In 1963, Pettibone suggested the subgenera *Scolelepis* and *Nerinides* based on neuropodial lamellae and ventral cirri. In 1987, Maciolek suggested the subgenera *Scolelepis* and *Parascolelepis* based on hooded hook morphology. These subgenera were then erected to generic status by Williams (2007) based on the phylogenetic analysis of Blake and Arnofsky (1999) (Blake 2006; Rocha and de Paiva 2012). The genus *Scolelepis* now includes 45 species (Delgado-Blas 2006; Rocha and de Paiva 2012). *Scolelepis foliosa* has many synonyms including *Aonis foliosa*, *Nerine coniocephala*, *Aonis vittata*, *Nerine sarsiana* and *Nerine foliosa occidentalis* and may be the same species as *S. alaskensis* and *S. bonnieri* (Treadwell 1914; Pettibone 1963).

Description

Size: The illustrated specimen (from Coos Bay) is 500 mm in length and 15 mm in width, with over 500 segments. The first 130 segments are 140 mm in length. *Scolelepis alaskensis*, which may be the same species, has 130 segments and is 80 mm in length (Treadwell 1914).

Color: The specimens we examined are golden tan with green palps that have white lines and spots, and red vessels.

General Morphology: A large and thick worm that is rectangular in cross section and bears many tightly arranged segments (Fig. 1).

Body: Not divided into distinct body regions (Spionidae) (Blake 1996).

Anterior: Prostomium pointed and tapered anteriorly (*Scolelepis*, Light 1978; Pettibone 1963), but can also be rounded (Berkeley and Berkeley 1952; Hobson and Banse 1981) (Fig. 2b).

No frontal horns. Small occipital cirrus present (Fig. 2a) and no caruncle (= dorsal sense organ, Hobson and Banse 1981) (Fig. 2b). Peristomium enlarged and envelops prostomium with two rolls (Light 1978) (Fig. 2b).

Trunk: Fifth setiger not modified (Figs. 1, 2a) and no interparapodial pouches (brackets, Fig. 1) (genus *Scolelepis*).

Posterior: Anus and pygidium are dorsal (Fig. 3). Pygidium is a thick, lobed pad with no cirri.

Parapodia: Biramous, lamellar and with variable shape (Fig. 5). Podia become small toward worm posterior (Fig. 5d), but are not glandular or thick.

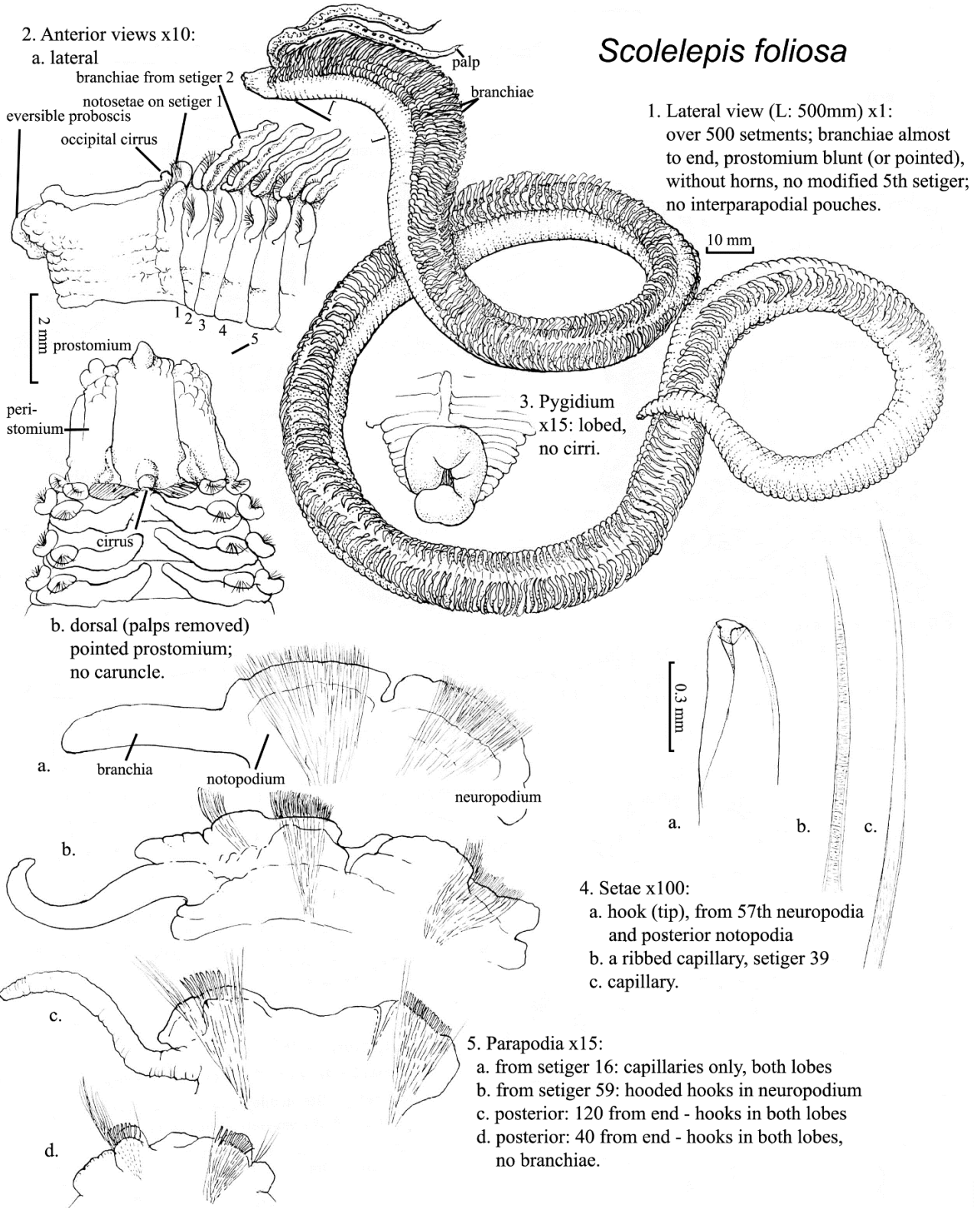
Setae (chaetae): Fine spines (capillaries) in all noto- and neuropodia. Hooded hooks (Fig. 4a) begin in neuropodia after setiger 57 (sp. *foliosa*, Light 1978). Hooks also on notopodia on posterior-most setigers (Figs. 4, 5c, d). Hooks hooded, unidentate or multidentate and worn (Fig. 4a). Capillary setae limbate (no wings) and very finely striated, some with horizontal ribs begin at setiger 39 (Fig. 4b). Notosetae present in setiger one (Fig. 2a). No setae with distal fringe.

Eyes/Eyespots: Two pairs, anteriorly, in some specimens (not the present specimen).

Anterior Appendages: Simple, massive and long (extending to setiger 20). Feeding palps (Fig. 1) are easily broken off.

Branchiae: Branchiae are long, cirriform and partly fused to parapodial lamellae, begin on setiger two (Figs. 2a, b) and continue almost to the worm posterior (genus *Scolelepis*, Light 1978) (Fig. 1).

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2. Anterior views x10:

a. lateral

branchiae from setiger 2
 notosetae on setiger 1
 eversible proboscis
 occipital cirrus
 1 2 3 4 5
 prostomium
 2 mm

peri-stomium

b. dorsal (palps removed)
 pointed prostomium;
 no caruncle.

a. branchia notopodium neuropodium

b.

c.

d.

1. Lateral view (L: 500mm) x1:
 over 500 setments; branchiae almost to end, prostomium blunt (or pointed), without horns, no modified 5th setiger; no interparapodial pouches.

10 mm

3. Pygidium x15: lobed, no cirri.

0.3 mm

a. b. c.

4. Setae x100:
 a. hook (tip), from 57th neuropodia and posterior notopodia
 b. a ribbed capillary, setiger 39
 c. capillary.

5. Parapodia x15:
 a. from setiger 16: capillaries only, both lobes
 b. from setiger 59: hooded hooks in neuropodium
 c. posterior: 120 from end - hooks in both lobes
 d. posterior: 40 from end - hooks in both lobes, no branchiae.

Burrow/Tube: Individuals make loose vertical burrows in shifting sands, but have no permanent tube (Pettibone 1963).

Pharynx: Bears a large, eversible proboscis which is saclike.

Genitalia:

Nephridia:

Possible Misidentifications

Spionidae can be distinguished by a pair of long prehensile grooved palps which arise from the posterior peristomium (Blake 1996). Two other polychaete families have long palps: the Magelonidae (adhesive palps, not long and flowing, and flattened spade-like prostomiums) and the Chaetopteridae (have palps, but their bodies are very obviously divided into three quite different regions which is not the case in spionids). The similar family Cirratulidae, may also have a large pair of palps, but they have tentacular filaments, which are lacking in the spionids. Spionids also have hooded hooks in posterior segments, may or may not have prostomial appendages or branchiae, the prostomium is well developed and fused with peristomium, the pharynx is without jaws and the setae are mostly simple (Blake 1975). Often certain segments are highly modified and have special setae, for example prostomial horns are present in some genera (not *Scolecopsis*). Spionid parapodia are biramous, with acicula (see *Leitoscoloplos pugettensis*) and sometimes have stout saber setae (not *Scolecopsis*). There are 19 local spionid genera (Blake and Ruff 2007).

Several other, locally occurring genera of spionids have well developed branchiae and pointed prostomia. *Spio* also has branchiae from setiger one, but lacks accessory branchiae. In *Pygospio*, branchiae first appear on setiger 10. (Males have an additional pair on setiger two (Light 1978). In both genera *Malacoceros* and *Laonice* the branchiae begin on setiger two. *Malacoceros* species are distinct in having ventral saber setae on their median and posterior segments and a prostomium with horns (Light 1978). *Laonice* lack the horns and saber setae, but have a very long caruncle, interparapodial pouches, and anal

cirri. They also have branchiae only on the anterior segments – all characteristics that are lacking in *Scolecopsis*.

The genus *Scolecopsis* is characterized by its pointed prostomium (which is blunt in *S. foliosa*), a caruncle (if present) to setiger two, a possible occipital cirrus, cirriform branchiae beginning on setiger two, an unmodified fifth setiger, no interparapodial pouches or saber setae and a pad-like pygidium (Light 1978). Other species that could be found in our area include:

Scolecopsis squamata, a species referred to as *Nerinides acuta* when it was found in San Francisco Bay (Jones 1961) and as *Nerine cirratulus* in South Slough, Coos Bay (Hartman and Reish 1950) as well as other places (Berkeley and Berkeley 1952; Hartman 1969). This species also has many synonyms (*Spio acuta*, *Nerine minuta*, and *Nerine agilis*) (Light 1978) and is primarily distinguishable from *S. foliosa* by its hooded hooks, which appear first on setigers 25–40 and not on setiger 57. Other differences include its capillary setae, which are limbate and without ribs. The prostomium of *S. squamata* is pointed fore and aft and it usually possesses two pairs of eyes. *Scolecopsis squamata* can be up to 80 mm in length and have up to 200 segments (Light 1978). Unlike *S. foliosa*, it has no occipital cirrus, and it does have a caruncle to setiger two. Like *S. foliosa*, it has long cirriform branchiae from setiger two and the post-setal lamellae of setiger one are well developed.

Scolecopsis tridentata has been found in California and in Ireland. It is not known if it is present in Oregon. It has tridentate hooded hooks, each with a large central fang, which begin on setigers 15–16, not on setiger 57. Capillary setae are limbate (unlike in *S. foliosa*), but are similarly ribbed.

Scolecopsis texana is reported from central CA and the eastern United States including the Gulf of Mexico. This species is recognizable by the lack of notosetae on the first setiger and neuropodial hooded hooks from setigers 13–27 (Blake and Ruff 2007).

Ecological Information

Range: *Scoelepis foliosa* exhibits a cosmopolitan distribution, which may be due in part to its convoluted taxonomic history and extensive synonymies. Pacific Coast range includes British Columbia (Berkeley and Berkeley 1952) and Washington (Imajima and Hartman 1964). Individuals are reported from Oregon and California (as *S. f. occidentafis*) by Audouin and Milne-Edwards 1833, although this species is not currently included in the most recent intertidal guide (Blake and Ruff 2007).

Local Distribution: Distribution in Coos Bay includes Clam Island, Pigeon Point, Charleston mudflats (e.g., Portside) and bay mouth, subtidally.

Habitat: Loose sandy mud and gravel in Coos Bay. Offshore in clean well-sorted sand (Hancock et al. 1984).

Salinity: Specimens collected at 30.

Temperature: Ranges from 9–15 °C.

Tidal Level: Found at approximately 0.0 m at Pigeon Point in Coos Bay. Offshore in about 5.4 m (Hancock et al. 1984).

Associates:

Abundance: Not common in Coos Bay.

Life-History Information

Reproduction: Pelagic development where larvae are mostly planktotrophic (Hannerz 1956).

Larva: Larvae of *Scoelepis foliosa* are planktotrophic and can be recognized using many adult characters including the presence of branchiae, setiger one and setiger five not modified and without specialized setae (as in adults), a pointed and triangular prostomium that may or may not bear lateral horns and a blackish brown gut (Crumrine 2001).

Juvenile:

Longevity:

Growth Rate:

Food: Selective surface deposit feeder (Fauchald and Jumars 1979).

Predators:

Behavior:

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