

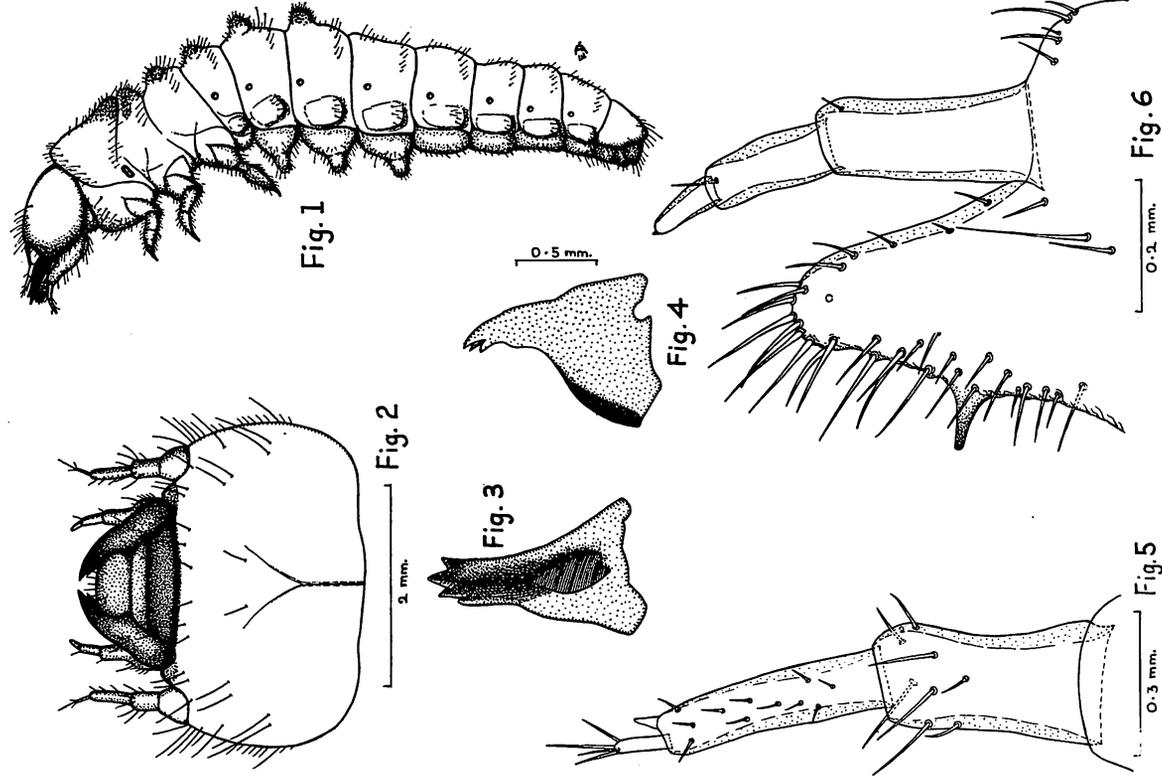
The Immature Stages of *Sessinia livida* (Fabricius)
(Coleoptera: Oedemeridae)

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It is of considerable interest to be able to report upon a collection of larvae and pupae of the oedemerid *Sessinia livida* (Fabricius) procured by Bishop Museum's Mangarevan Expedition to southeastern Polynesia in 1934. The immature stages of beetles of this genus have heretofore been unknown to science. In fact, the immature stages of very few species of the entire family have been described.

Mature larva (Fig. 1). Length up to 25 mm.; breadth (at prothorax) 3.9 mm. Form cylindrical, rather slender, and strongly tapering posteriorly. **Head** (Fig. 2) moderately depressed, transverse, subrectangular, and pale testaceous. Sides moderately rounded, with temples smooth, bearing a few fine, pale setae. Median adfrontal suture not extending beyond basal half of head capsule. Frontal sutures faint anteriorly, but distinctly impressed posteriorly in the form of a 'V'. Frons with anterior margin rather weakly sclerotised, roundly declivous. Ocelli absent. Clypeus trapezoidal, the anterior portion smooth, white, and feebly sclerotised; posterior portion castaneous, rather strongly sclerotised, and bearing four pairs of setae. Labrum transversely oval, and fringed with setae. Mandibles asymmetrical, ferruginous, with apices pitchy and tri-dentate; left mandible (Fig. 3) with a small supplementary tooth behind dorsal apical tooth; right mandible (Fig. 4) slightly angled behind dorsal apical tooth; mola well-defined, the grinding surface finely carinate. Antenna (Fig. 5) 3-segmented, with a very large basal membrane; first segment at least twice as long as basal width, and slightly enlarged apically; second segment slightly longer than first, and nearly four times as long as basal width; third segment three times as long as basal width, about one-fourth length of second segment, and bearing a few apical setae; supplementary hyaline process conical, strongly tapering, and nearly half as long as third segment. Gula strongly transverse. Ventral mouthparts strongly retracted. Cardo divided into two parts. Maxilla (Fig. 6) with lobe wide basally, tapering and rounded apically; middle of inner margin produced into a long stout tooth. Maxillary palpi (Fig. 6) 3-segmented; second segment about two-thirds length of first; third about half length of second. Labial palpi (Fig. 7) 2-segmented; first segment bearing a pair of setae on inner margin near apex; second segment about half length of first. Hypopharyngeal sclerite (Fig. 7) very strongly sclerotised, with anterior margin obliquely truncate; projecting beyond this sclerite is a densely setose tongue-like lobe. *Prothorax* scarcely depressed, transverse, with posterior margin 'V'-shaped. Pronotum with median cleavage line

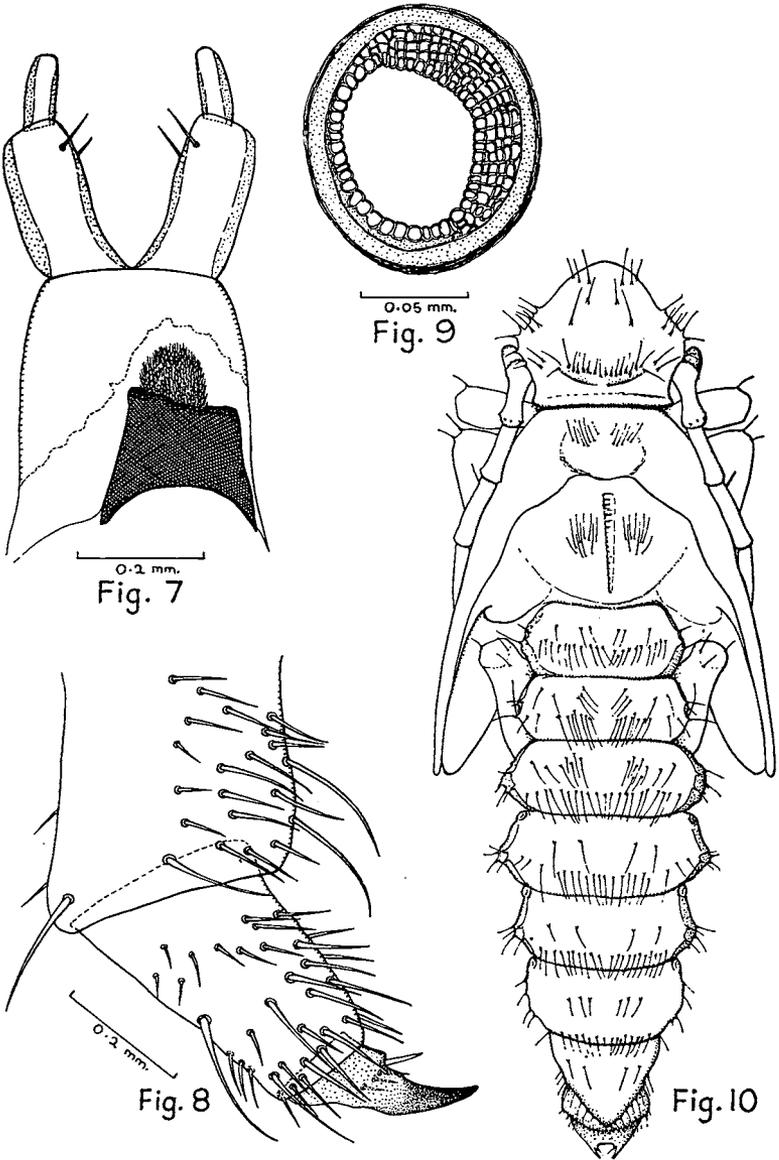
Anatomy of *Sessinia livida* L.

- Figure 1. Mature larva (lateral view).
 Figure 2. Mature larva; head (dorsal view).
 Figure 3. Mature larva; left mandible.
 Figure 4. Mature larva; right mandible.
 Figure 5. Mature larva; left antenna.
 Figure 6. Mature larva; apical part of left maxilla.

deep posteriorly, and bisecting a median lobe which bears a pair of sub-triangular asperate areas. Eusternum separated from presternum by a median 'V'-shaped suture. *Mesonotum* and *metanotum* with paired, transversely-oval, raised, tuberculate, asperate areas. *Abdomen* with tergites 1-3 with similar asperate areas which are more strongly protuberant. Tergites 4-9 strongly elongate, without asperities, and very sparsely setose. Ninth tergite without urogomphi. Sternites 2-4 very strongly bilobed, the lobes resembling, if not in fact, prolegs; each lobe strongly produced, teat-shaped, and bearing numerous coarse asperities and very fine setae. Sternites 5-9 without asperities, and sparsely setose. Tenth segment small, ventrally placed, rounded, strongly protuberant (used as pseudopod?); anus a transverse cleft. Epipleura distinct, and protuberant on segments 1-9. Hypopleura indistinct. *Legs* (Fig. 8) well-developed, 4-segmented; femur and tibiotarsus about equal in length, and bearing numerous coarse, pale setae on inner face; unguiculus stout, apical half ferruginous, and with a stout sub-basal seta. *Spiracles* of mesothorax large, with peritreme thick, testaceous, and rather narrowly oval; abdominal spiracles small, with peritreme thin, round, and with inner margins lined with subcontiguous chambers as figured (Fig. 9).

Pupa (Fig. 10). General form as in adult; elongate, slender. Length up to 16 mm.; maximum breadth (at prothorax) 3.2 mm. *Head* depressed, not visible from above. Disc smooth. Front with groups of long setose papillae near upper margin of each eye, and near base of each antenna. Antennae slender, sparsely spiculate, extending ventrally on top of elytra to about as far as the apices. Labrum deeply bilobed apically, and bearing a few fine setae. Mandibles each with 2-6 fine setae on outer face. Maxillary palpi elongate, more than twice as long as mandibles. *Pronotum* smooth, bearing scattered, pale, setose papillae as figured. *Mesonotum* and *metanotum* each with a pair of paramedian papillate areas, the papillae much shorter than those on pronotum. Scutellum glabrous. Elytra and wings extending almost as far as fourth abdominal segment. *Abdomen* with tergites 1-8 each with a transverse row of minute spines (each with a very long apical seta) near posterior margin, and a few scattered similar spines anterior to these. Lateral margins of tergites bearing 2-3 setose papillae similar to those on pronotum. Ninth tergum with a pair of vertical slender, slightly curved, ferruginous urogomphi, which are separated by almost the width of the segment. Sternites each with 2-3 pairs of sublateral, setose spinules. Ninth sternite bilobed, each lobe bearing 2-3 asperities. Tenth segment retracted into ninth. *Legs* with femora bearing a few setose papillae at apex; tibiae each with conspicuous apical spurs; tarsi with claws bearing 1-2 pairs of minute setae; hind-tarsi extending as far as sixth abdominal segment. *Functional spiracles* present on segments 1-7; peritreme round, thick, and pale testaceous.

Material studied. 5 larvae, 4 pupae, 2 imagines. Society Islands: Meetia Island, Fatia-po; 500-900 ft.; 12.v.1934; from rotten log of *Hibiscus tiliaceus*; collected by E. C. Zimmerman. Specimens will be deposited in the



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- Figure 7. Mature larva; showing position of hypopharyngeal sclerite in relation to labial palp.
- Figure 8. Mature larva; apical part of right prothoracic leg.
- Figure 9. Mature larva; peritreme of abdominal spiracle.
- Figure 10. Pupa (dorsal view).

collections of Bishop Museum, British Museum (Natural History), and the United States National Museum.

The larva of this species closely resembles that of *Falsosessinia sculpticollis* (Fairmaire), described by Gardner (1929). The main characters these species possess in common are: (1) the presence of asperities on abdominal tergites 1-3, and of prolegs on sternites 2-4; (2) the presence of a long stout tooth on the inner margin of the maxillary lobe; and (3) the absence of ocelli. The larva of *S. livida* may be distinguished from that of *F. sculpticollis* by the absence of a median tubercle on the posterior part of the clypeus, and by the asperities of the first abdominal tergite, which are not distinctly smaller than those on tergites 2-3.

Both these species are wide-spread and oceanic, their known distribution being as follows:

S. livida: Marquesas Islands, Fiji, and Tonga; Samoa, Ellice Islands, Funafuti, Henderson, and Society Islands (Blair, 1935).

F. sculpticollis: Sumatra; Andaman Islands (Gardner, 1929).

Another oedemerid likely to become established in the Society Islands is the well-known *Nacerdes melanura* (L.), which in recent years has become almost cosmopolitan. Larvae of *Nacerdes* may at once be distinguished from those of *Sessinia* and *Falsosessinia* by the presence of only two pairs of ventral prolegs.

The immature stages of most oedemerids are passed in old wood, some species preferring that which is rather damp and punky, others that which is quite dry. Their wide distribution may almost certainly be attributed to the fact that these larvae are highly resistant to salt water, and are carried to various parts of the world in wooden structures, ships, and in drift wood. *Sessinia livida* may prove to be destructive to wharves, hulks, and even structural timbers of buildings, in the same way as has *Nacerdes melanura*.

In conclusion, I wish to thank Elwood C. Zimmerman of the Experiment Station, Hawaiian Sugar Planters' Association, and Bernice P. Bishop Museum, Honolulu, for suggesting the preparation of this paper, and for his kindness in lending me the material studied.

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