

A KEY TO THE LAST INSTAR LARVAE OF WEST COAST SATURNIIDAE

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This following key will facilitate the identification of 16 species of saturniid larvae found in California, Oregon, and Washington. The identification of either live or preserved larvae should be possible since morphological characters have been stressed. Observation of many of the characters requires a 10 power hand lens. Secondary emphasis has been placed on color, since those colors derived from plant compounds, such as green and yellow, fade quickly to white or cream in preservatives. Pigments which are black or brown, however, remain rather constant. The first character in each couplet is assumed to be the most important.

In addition to host plant and distributional information for each species, a reference to a paper containing a larval description is included. Other references which would aid in the identification of saturniid larvae include Peterson (1962) and Ferguson (1971, 1972). Ferguson includes keys for the identification of many eastern species, with the Citheroniinae receiving the most complete treatment. Peterson's work provides some information on preservation techniques, as well as a few illustrations of the more common eastern species.

All material examined during the construction of this key was from California populations. The author would appreciate receiving any larva which does not key out correctly. It is unfortunate that at this time a complete key to the western species could not be published, but preserved larvae of a number of species from Arizona and New Mexico are lacking.

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1. Dorsal thoracic scoli unarmed, consisting of 2 pairs of enlarged, caudally recurved spikelike projections on both meso- and metathorax (Fig. 1a); spikelike median dorsal scoli on abdominal segment VIII; ground color green (Citheroniinae) *Sphingicampa hubbardi* (Dyar) 2
- Dorsal thoracic scoli branched or armed with spines (Figs. 1b, c, d, e, f); median dorsal scoli on abdominal segment VIII present or absent; ground color variable 2
2. Dorsal scoli not branched, but rounded, cylindrical, or bulblike with spines (Figs. 1b, c, d); ground color green or yellow-orange (Saturniinae) 3
- Dorsal scoli branched (Figs. 1e, f); ground color black, gray, brown, or yellow (Hemileucinae) 8

3. Dorsal thoracic scoli bulblike or cylindrical and $1\frac{1}{2}$ –3 times longer than wide; spines on dorsal scoli equal to or less than width of scoli (Figs. 1b, c); ventral scoli of thoracic segments without spines or with 2 spines shorter than length of scoli (*Hyalophora*) 4
 - Dorsal thoracic scoli rounded, length approximately equal to width; spines on dorsal scoli $2\frac{1}{2}$ –8 times longer than width of scoli (Fig. 1d); ventral scoli of thoracic segments with 2 or more spines 2–3 times longer than length of scoli (*Antheraea* & *Saturnia*) 5
4. Dorsal meso- and metathoracic scoli cylindrical with complete black band at midpoint (Fig. 1c); caudal scoli length usually less than width *Hyalophora euryalus* (Boisduval)
 - Dorsal meso- and metathoracic scoli bulblike; band at midpoint incomplete on two or more scoli (Fig. 1b); caudal scoli length greater than width *H. gloveri* (Strecker)
5. Abdominal segment VIII with median dorsal scolus; ventral surface green *Antheraea polyphemus* (Cramer)
 - Abdominal segment VIII not bearing median dorsal scolus; ventral surface light to dark brown (*Saturnia*) 6
6. Two or fewer dark setae on dorsal portion of any proleg; setae not extending past tip of proleg 7
 - Four or more dark setae on dorsal portion of any proleg; setae may extend beyond tip of proleg (Fig. 2a) *Saturnia mendocino* Behrens
7. Lateral bands on abdominal segments extending ventrally from lateral scoli to sublateral scoli and touching the posterior edge of spiracle; some setae on prolegs extending from chalazae (Fig. 2b) *Saturnia albofasciata* (Johnson)
 - Lateral bands absent; setae on prolegs extending from pinaculae rather than chalazae (Fig. 2c) *S. walterorum* Hogue & Johnson
8. Dorsal and lateral scoli with short barrel-like branches, 2 or less times longer than wide (Fig. 1e); lateral ocelli in heavily sclerotized semicircular area *Coloradia pandora lindseyi* Barnes & Benjamin
 - Dorsal scoli in rosettes, lateral scoli with branches 3 or more times longer than wide; sclerotized area surrounding ocelli similar to rest of head capsule (*Hemileuca*) 9
9. Secondary setae not arising from circular white or yellow spots 10
 - Secondary setae arising from circular white or yellow spots giving skin a reticulated appearance 12
10. Clypeus with 6–10 setae; ventral abdominal surface black to brown; prolegs black *Hemileuca nuttalli* (Strecker)
 - Clypeus with 4 setae; ventral abdominal surface white, red, or black; prolegs red or black 11
11. Ventral intersegmental area white or cream colored; prolegs black; body with 3 lateral white bands; median dorsal line incomplete; microscopic cream colored dots ventral to spiracle *Hemileuca hera* (Harris)
 - Ventral intersegmental area red to light brown; prolegs red; 1–3 complete lateral bands (may be absent in coastal populations); median dorsal line absent; no microscopic dots ventral to spiracle *H. eglanterina* (Boisduval)
12. Clypeus with 4 setae; white band covering 30% or less of clypeus 13
 - Clypeus with 6–8 setae; white band covering 40% or more of clypeus 14
13. Branches of sublateral and ventral scoli white; dorsal scoli of rosette type only on abdominal segments I–VI *Hemileuca electra* Wright
 - Branches of sublateral and ventral scoli with basal $\frac{1}{4}$ – $\frac{1}{2}$ dark, tip dark brown; dorsal scoli with branching setae extending from rosettes on all abdominal segments *H. burnsi* Watson
14. Dorsal rosette setae white-yellow with black tip; ground color yellow *Hemileuca nevadensis* Stretch

- Dorsal rosette setae dark brown at base, distal $\frac{1}{3}$ - $\frac{1}{2}$ of setae dark, mid-portion white; ground color gray to brown 15
15. Secondary setae on ventral intersegmental area hyaline brown; prolegs red; proximal $\frac{1}{3}$ - $\frac{1}{2}$ of rosette setae brown *Hemileuca neumoegei* (Edwards)
- Secondary setae on ventral intersegmental area brown; prolegs brown; proximal $\frac{1}{2}$ of rosette setae black *H. juno* Packard

Distributional and Host Plant Information

Sphingicampa hubbardi. Distribution: California (new state record) 1 ♂, 1 ♀, Bonanza King Mine, Providence Mts., San Bernardino Co., Cal., VIII-20-37; same locality, 1 ♂, VIII-23-37; 1 ♂, Wheaton Springs, at general store, Mescal Range, San Bernardino Co., Cal., elev. 4000', VIII-30-41, C. Henne collector. All 4 specimens are in the collection of Mr. Henne. The specimens from the Providence Mts. were taken by the watchman, name unknown. Habitat: high desert. Host: possibly *Acacia greggii*. Larval description: Comstock (1947).

Hyalophora euryalus. Distribution: general. Habitat: chaparral, oak woodland, and pine forest. Hosts: *Ceanothus*, *Salix*, *Rhus*, *Ribes*, *Schinus*, *Arctostaphylos*, *Arbutus*, *Prunus*, and many minor hosts including *Quercus*. Larval description: Packard (1914).

Hyalophora gloveri. Distribution: California, east slope of Sierra Nevada, from Inyo Co. to Alpine Co. and probably farther north. No available records for Washington or Oregon, but it should occur in the extreme eastern portion of each state. Habitat: Great Basin and pine forest. Hosts: *Salix*, *Purshia tridentata*, *Prunus virginiana*, and *Rosa*. This species frequently hybridizes with *H. euryalus* where they are sympatric in California. Larval description: Packard (1914).

Antheraea polyphemus. Distribution: general. Habitat: oak woodland, riparian, and residential. Hosts: *Quercus*, *Salix*, and *Betula*. Larval description: Packard (1914).

Saturnia albofasciata. Distribution: California only, known from Lake and El Dorado counties south to Los Angeles and San Bernardino counties. Habitat: mixed chaparral from 1300-7000'. Host: *Ceanothus cuneatus* and *Cercocarpus betuloides*. Larval description: Hogue et al. (1965).

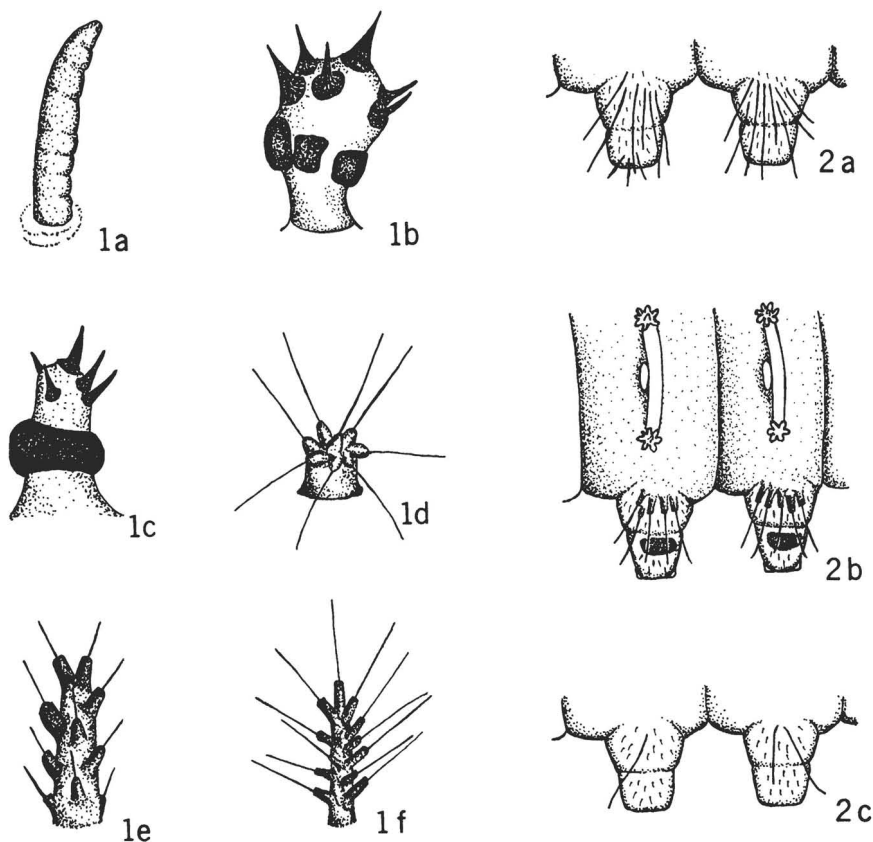
Saturnia mendocino. Distribution: California, Shasta Co. south to Santa Cruz Co., also western slopes of the Sierra Nevada south to at least Mariposa Co. Oregon, one record (Ashland, Jackson Co., IV-14-1946, Coll. Martin). Habitat: chaparral, pine, or mixed oak woodland. Hosts: *Arctostaphylos* and *Arbutus*. Larval description: Comstock (1960).

Saturnia walterorum. Distribution: California only, San Luis Obispo Co. south to San Diego Co. Habitat: chaparral to pine forest, sea level to 6000'. Hosts: *Rhus laurina*, *R. integrifolia*, and *Arctostaphylos*. Larval description: Sala & Hogue (1958).

Coloradia pandora lindseyi. Distribution: southern Oregon and California; spotty over much of its range. Habitat: pine forest. Hosts: *Pinus ponderosa* and *P. jeffreyi*. Larval description: Patterson (1929).

Hemileuca hera. Distribution: California, eastern slopes of Sierra Nevada. Oregon and Washington, eastern half of each state, especially the Columbia River basin. Populations are frequently very localized and scattered. Host: *Artemisia tridentata*. Larval description: McFarland (1964).

Hemileuca eglanderina. Distribution: general. Habitat: varied, riparian in dry areas, to moist oak-pine forests. Hosts: *Salix*, *Ceanothus*, *Purshia*, *Prunus*, and *Symphoricarpos*. Two subspecies occur in California and Oregon: *H. eglanderina shastaensis* (Grote) is known from Shasta, Plumas, Lassen and Siskiyou counties in California, also Klamath and Jackson counties in Oregon. *H. eglanderina annulata*



Figs. 1a-f. Dorsal metathoracic scoli of: 1a, *Sphingicampa hubbardi*; 1b, *Hyalophora gloveri*; 1c, *Hyalophora euryalus*; 1d, *Saturnia mendocino*; 1e, *Coloradia pandora*; 1f, *Hemileuca* sp.

Figs. 2a-2c. Prolegs of abdominal segments III and IV: 2a, *Saturnia mendocino*; 2b, *S. albofasciata*. 2c, *S. walterorum*.

Ferguson is known from the east slope of the Sierra Nevada Mts. from Inyo to Alpine Co. Larval description: Ferguson (1971).

Hemileuca nuttalli. Distribution: eastern Oregon, Washington, and California, similar to that of *H. hera*. Habitat: sagebrush areas. Hosts: *Symphoricarpos* and *Purshia*. Larval description: McFarland (1974).

Hemileuca electra. Distribution: California only, Los Angeles, Riverside, San Bernardino, and San Diego counties. This species may occur slightly farther north along the coast. Habitat: chaparral. Host: *Eriogonum fasciculatum*. *H. electra clio* Barnes & McDunnough occurs in desert areas of the above four counties. Larval description: Comstock & Dammers (1939).

Hemileuca nevadensis. Distribution: spotty over much of California and Oregon. One sight record from southern Washington. Habitat: usually riparian. Hosts: *Salix* and possibly *Populus*. Larval description: Comstock & Dammers (1939).

Hemileuca burnsi. Distribution: California, Los Angeles Co. east, and north along the eastern slope of the Sierra Nevada. Habitat: high desert. Hosts: *Tetradymia*, occasionally *Dalea*, or *Prunus fasciculata*. Larval description: Comstock & Dammers (1937).

Hemileuca juno. Distribution: California, Imperial Co. near Yuma. This species may occur in portions of Riverside and San Bernardino counties. Habitat: desert. Hosts: *Prosopis* and possibly *Cercidium*. Larval description: Comstock & Dammers (1939).

Hemileuca neumoeogeni. Distribution: California, Providence Mts., San Bernardino Co. Habitat: High desert-chaparral. Hosts: *Rhus trilobata* and *Prunus fasciculata*. Undescribed.

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