

LARVA AND PUPA OF DESMOCERUS CALIFORNICUS. (HORN)

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This uncommon Southern Californian insect was first described by Dr. George Horn in 1881. (Trans. Am. Ent. Soc. IX, 1881, p. 7.) His description is as follows:

D. californicus—black opaque, elytra bluish or greenish black, narrowly margined at base and sides with orange-red. Head and thorax densely and moderately coarsely punctured, the latter with the surface regular, and with a slight tinge of bluish-green. Elytra densely punctured, the punctures near the base coarse and deep, becoming gradually finer and denser toward the apex, surface black opaque and with a bluish, violaceous or greenish tinge, the lateral and basal margins narrowly orange-red, scutellum and a small spot on each side black. Body beneath and legs densely and rather finely punctured, the metasternum very finely pubescent. Length .64♂—.84♀ inch:—16-20 mm.

The adult insects emerge in late March or early April, and may be occasionally taken resting upon the leaves of the food plant, the elder (*Sambucus glaucus*), usually at midday, resting on leaves exposed to the sun. They are not very wary, and when seen may be secured without much difficulty.

In December 1923, I secured two pupae and four larvae of this insect from elders growing in a canyon wash near Pasadena.

Larva: Form elongate, subcylindrical, the thoracic segments flattened above and beneath, integument shining, almost glabrous, color yellow-white, head light yellow-brown, mandibles black.

Head: Sub-orbicular, somewhat flattened, tapering in front, inserted into the prothorax about half its length. Exposed portion chitinous, yellow-brown, minutely alutaceous, sparsely clothed with brown bristles on front and sides. A brown depressed median line at the basal two-thirds, frontal sutures depressed, yellow, a transverse yellow suture just back of the epistoma. Epistoma dark brown, heavily chitinized, somewhat thickened at anterior edge into a transverse ridge, bearing a small transverse depression each side of the median, from which grows a single seta. Two other setae spring from small round pits close together on the anterior edge near the dorsal mandibular articulation. Clypeus thin, trapezoidal, transverse, shining yellow-white, brown along anterior edge. Labrum transversely oval, about $2\frac{1}{2}$ times as wide as long. A dense mat of short brown bristles conceals the anterior margin. Antennae very short, three-jointed, retractile. Three black, beadlike ocelli. Submentum transverse, subcordate, whitish. Mentum trapezoidal, nearly square, with fine striae on the anterior half. Ligula ovate, almost hidden by stipes and palpi, several coarse brown setae on surface, anterior edge rounded and very finely ciliate. Labial stipes prominent, brown at basal half. Palpi two-jointed, short and stout, joints oval, brown, the first a little longer than and about twice as wide as the second. Maxillae: cardo diamond-shaped, white, separated from the maxillary sclerite by an indistinct depressed line. Stripe transversely oval; palpifer nearly square, lacinia stout, cylindrical, length equal to first joints of palpus, brown, rounded at tip, bearing many coarse brown bristles, especially on the inner apex. Palpus three-jointed, the second

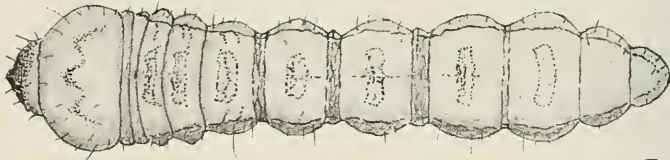
equal in length to, and about half as wide as the first, the third narrower, conical, rounded at tip. Anterior margin of hypostoma dark brown, retracted at middle. Gula not distinct.

Prothorax transverse, tapering in front, widest at middle. Pronotum shining, anterior third yellowish, marking insertion of head, sparsely punctate except on extreme anterior margin, and alutaceous between punctures. A few long, brown hairs, especially at sides. Posterior quite strongly reticulate, an oblique depression in the posterior half, about two-thirds laterally from the median.

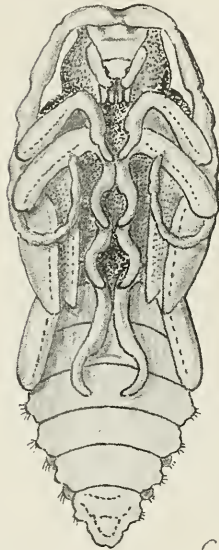
PLATE 2.



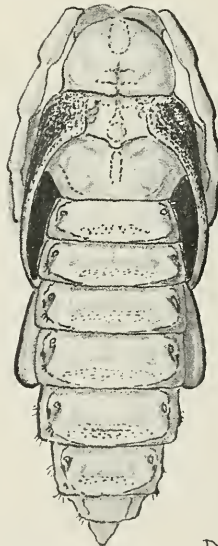
A



B



C



D

- A. Larva of *Desmocerus Californicus*. (Horn) Lateral Aspect.
 B. Larva of *D. Californicus*, Dorsal Aspect.
 C. Pupa of Same, Ventral Aspect.
 D. Pupa of Same, Dorsal Aspect.
 All figures enlarged.

Meso and metanotum short, broad, surface not shining, the former bearing the first spiracle, which is vertically elongate, about twice as long as wide. Legs well developed, robust, anterior pair shortest. Coxae widely separated, short, conical; trochanter short and broad; femur stout, widest at basal third. The inner face of trochanter and femur bear several brown hairs. Tibia subequal in length to the femur, but narrower, apex brown, chitinous; tarsus long, (equal to $\frac{1}{2}$ the tibia) acute, tip chitinous, recurved. Metathorax larger than mesothorax. Eusternum somewhat transverse, triangular, broadly rounded anteriorly, glabrous except for a few brown hairs, surface dull.

Abdomen—Ampullae (segs. 1-7) broad, somewhat flattened, tubercles large, confluent, a transverse lateral impression just back of the middle on segments one to five, and an oblique line anterior on all segments cutting off a small triangle next to the anterior median on each side. Posterior borders of ampullae ill-defined on most segments. Epipleurum distinct on all segments. Pleural tubercle narrowly oval, bearing, on segments one to six, two long setae and one or two fine hairs below; and on segments seven and eight, three long setae and from one to four fine hairs. Eighth segment smooth and shining dorsally. Ninth with tergum broad, bearing numerous setae, especially along the raised posterior and lateral margin. Anal lobes projecting slightly, the dorsal one bearing several long setae on each side, dorsally and laterally. Spiracles oval, deep, peritreme thin.

Pupa: White, head and thorax resembling adult except that they are impunctate, or nearly so. At base of head, dorsally, two small tubercles, one just each side of the median, which apparently do not appear in the adult insect. Head bent under the prothorax so as to be hardly visible from above. Anterior region of Pronotum tuberculate centrally, and bearing a few brown hairs. A deep median groove in the basal two-thirds with a group of brown hairs on either side.

Meso and metathoracic segments visible from above, the latter impressed along the median, and both alutaceous, with a series of short impressed lines extending laterally from the median. Scutellum prominent, nearly circular. Elytra veined, bent beneath the thorax between the middle and hind legs. Legs folded. Several long brown hairs near the tip of each femur.

Abdominal segments one to six bearing numerous short, straight spines at sides and on transverse raised areas just forward of the posterior margins. Segments seven to nine bearing long attenuate hairs from chitinous pores. Ninth with two short, widely separated, conical, chitinous tipped spines extending posteriorly and slightly laterally from the dorsal apex.

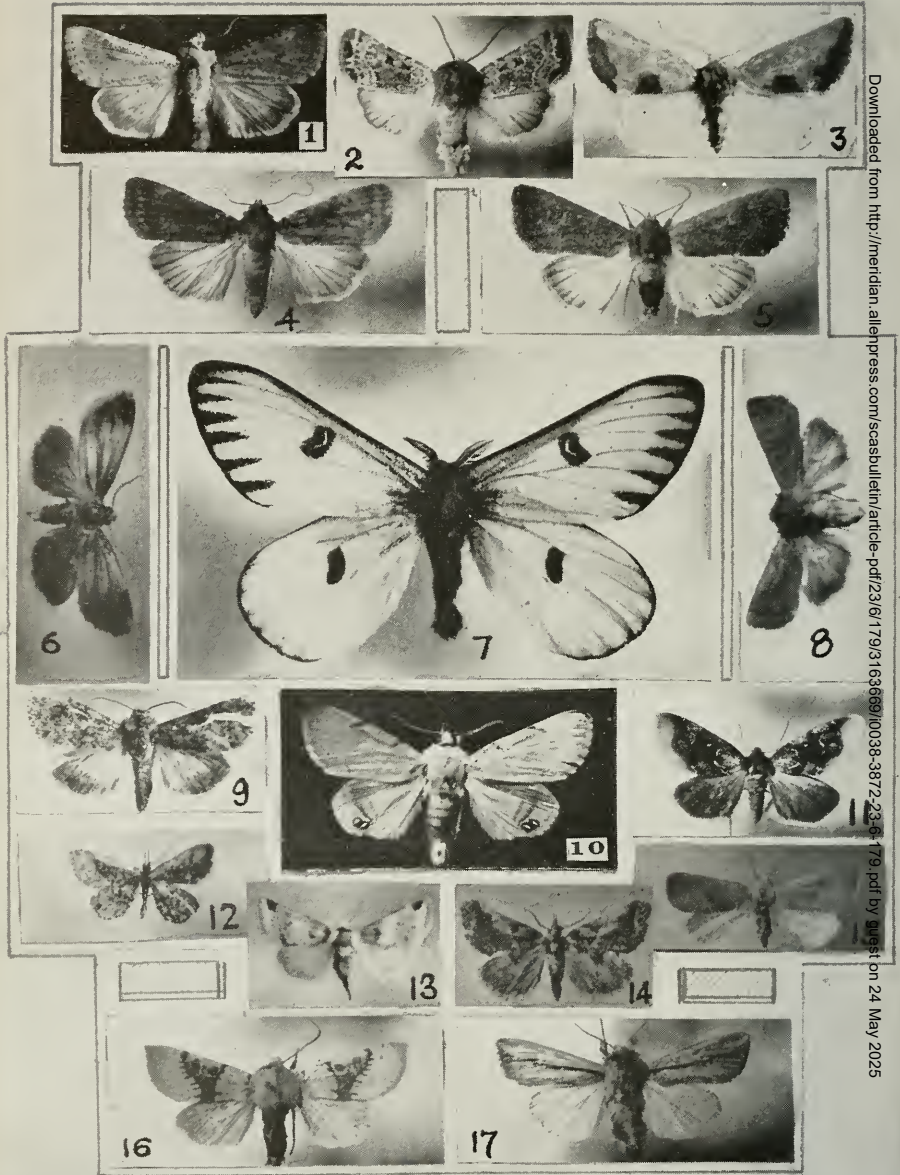
Antennae bent under the thorax between the second and third pair of legs, thence curled forward and outward. The apical joint has an impressed ring at about the center, appearing almost as two joints, as is the case, though less noticeably so, in the imago.

The larvae evidently work underground in the roots, until ready to pupate, since only pupae and fully grown larvae were found in the trunk and limbs.

The pupal chamber is in the center of the limb, the pith being almost entirely removed for two or three inches. About four inches above the chamber there is a short transverse burrow, leading almost at right angles to the outside, where the bark is reduced to paper thinness, but never entirely broken through.

The coarse crass from this burrow is used by the larva to form loose plugs for about three inches below, and one inch above the pupal chamber. The pupa is in the bottom of the chamber, head toward the exit hole, the cast-off larval skin forming a sort of cushion for the tip of the abdomen.

PLATE 3.



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