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TWO NEW SPECIES OF *CINARA* FROM CALIFORNIA (APHIDAE) WHICH HAVE *PINUS COULTERI* AS HOST

By F. C. Hottes

The new species described herewith were sent me for determination by R. C. Dickson and it is a pleasure to acknowledge his assistance.

Cinara diabola, new species

Alate viviparous female: The heads of the two alate specimens have been removed so that the body length of 2.89 mm is only approximate for the holotype. Color notes from living specimens are not available. The specimen has been cleared and stained but shows the following color: Head and thorax dark dusky brown, with the median transverse suture much darker; first and second antennal segments concolorous with head, or with the second segment slightly lighter; third antennal segment with apical half dusky; fourth and fifth antennal segments dusky with apical regions slightly darker; sixth antennal segment dusky; thoracic lobes dusky brown with the margins much darker. Lateral lobes with a few scattered hairs which are short. The median portion of these lobes free from hairs. Posterior lobe of thorax with a few very short hairs in the lateral posterior region. Costal margin of forewing dusky. All femora dusky brown with the basal portion not so dark. Metathoracic femora darkest. Pro- and mesothoracic tibiae with a short basal region dark brown, this followed by light dusky which shades to dark dusky before middle. Metathoracic tibiae with short basal region dark brown, this followed by pale dusky for about one-third the length of the tibiae, remainder of tibiae dark dusky brown. Tarsal segments brown. Median region of dorsum of abdomen with six rows of wax pore plates, the two median plates being much smaller. Cornicles dusky. Transverse pigmented area anterior to cauda not divided and very wide. Cauda and anal plate brown.

Head and thorax. Antennal segments with the following lengths: III, .45 mm; IV, .16 mm; V, .22 mm; VI, .13 + .06 mm. The hairs on antennal segment three vary from .03–.045 mm in length; they are not numerous, nor are they set at the same angle, but most are at an angle of more than 45 degrees. Secondary sensoria on antennal segment three on

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morphotype seven, on paratype three, each with primary sensorium. The secondary sensoria are small, tuburculate and arranged in a straight row. The fourth antennal segment of the holotype varies: one antenna has a small tuberculate sensorium, the other antenna is without this. Fifth antennal segment with one secondary sensorium and the primary sensorium. Marginal sensoria on sixth antennal segment small. Last three segments of the rostrum with the following lengths: .22, .25, and .12 mm. Media of forewings once branched. Metathoracic femora .915 mm in length. Metathoracic tibiae 1.56 mm. Hairs on outer margin metathoracic tibiae comparatively few, set almost at right angles, varying in length from .045–.08 mm, spaced for the most part not much closer than their length. Hairs on inner margin of hind tibiae more numerous than those on outer margin, not so upstanding. First metatarsal segment .12 mm long, ventral surface with nine hairs; second metatarsal segment .25 mm long.

Abdomen. Hairs on dorsum of abdomen shorter than width of pigmented area from which they arise. Cornicles with base measuring about .14 mm; cornicles about as high as width of base with rim reflexed. Hairs on cornicles about .05 mm in length and few. Base of cornicles with a few concentric rows of figures made by reticulations on the surface. Hairs on pigmented area anterior to cauda few, confined largely to the ends, rather spinelike, varying as to length but none very long. Genital plate large, with a wide notch in the anterior margin, posterior margin with a concave area. Ventral surface of abdomen with numerous long (.045 mm) hairs which are spinelike. The ventral surface of the abdomen has transverse rows of coarse setulae.

Apterous viviparous female: Length from vertex to end of cauda 3.38 mm. Width of head through the eyes .74 mm. Color notes from life not available but as indicated by cleared, stained specimens as follows: Head dark brown with margins of head darker; antennae dusky brown with the sixth segment darkest; femora dusky brown; tibiae dusky brown, almost uniform in color; dorsum of abdomen with a large dusky saddle, area of dorsum not covered by saddle, pale; cornicles brown, distinct from saddle. Length of antennal segments as follows: III, .50 mm; IV, .16 mm; V, .19 mm; VI, .15 + .09 mm. Third and fourth antennal segments without sensoria; fifth segment with only secondary sensorium. Hairs on antennal segments not numerous; on third .03–.04 mm in length, longer and more numerous on anterior margin, where they are set at an angle of about 90 degrees. Ocular tubercles very small. Rostrum reaching beyond cornicles, and in paratype to genital plate. Last three segments of rostrum with the following length: III, .26; IV, .30, and V, .15 mm. Third segment of rostrum with numerous hairs along the lateral margins. Hairs along the outer margin of the prothoracic tibiae spaced about as far apart as their length, rather spinelike, set at angle slightly less than 90 degrees. Hairs on outer margin of metathoracic tibiae .05 mm in length, spaced about as far apart as their length, set at angle of about 90 degrees, not more numerous towards the apex. Saddle on

dorsum with hairs sparse, not much longer than width of pale area from which they arise. Saddle with a broad, irregular depression in mid-anterior region. Base of cornicles .15 mm, slightly larger in paratype, rather high, with rim reflexed. Genital plate large. Pigmented band anterior to cauda very wide. Ventral surface of abdomen with transverse rows of setulae, and a few sharp pointed hairs which are about .045 mm in length.

Remarks: There is no question about this species being closely allied to *C. glabra* Gillette and Palmer. It may be keyed to that species in Palmer's key to the genus *Cinara* in Aphids of the Rocky Mountain Region. It differs from *glabra* as follows: fewer coarser, more upstanding hairs on the tibiae; a wide depression, not a deep notch in the anterior margin of the saddle; tibiae not with apical portions darker.

Holotype apterous viviparous female, morphotype alate viviparous female, on same slide as holotype of *C. montanesa.* Holotype on slide with one apterous viviparous female. Both types deposited in U. S. National Museum. Host, *Pinus coulteri* (Pitch Pine). Collected by R. C. Dickson, San Bernardino Mts., 9 August 1939.

Cinara montanesa, new species

Apterous viviparous female: Length from vertex to end of anal plate 5.70 mm. Width of head through the eyes .75 mm. Specimens of this species have been cleared, stained and mounted, there are no color notes from living specimens. Color indicated by mounted specimens as follows: Head and thorax light dusky; first and second antennal segments concolorous with head; antennal segments three, four and five with apical regions dusky, remainder of segment pale; antennal segment six uniformly dusky; femora dusky; tibiae with a very short region near base very dark dusky brown followed by a pale region which is about .75 mm in length, remainder of tibiae dusky brown; tarsal segments brown. Cornicles pale brown with clear areas; outer margin of cornicles very much broken and irregular; transverse pigmented areas anterior to cauda with a row of long and pointed hairs along the posterior margin.

Head and thorax. Antennal segments with the following lengths: III, .60 mm; IV, .30 mm; V, .31 mm; VI, .15 + .05 mm. Hair on antennal segments set at an angle of 45 degrees or more. Third antennal segment without primary sensorium. The single sensorium present on one antenna is small and more like a secondary sensorium than it is to a primary; it is also rather far removed from the end. The fourth antennal segment is like that of the third as to sensoria. The fifth antennal segment has a large primary sensorium and one secondary sensorium. The marginal sensoria on the sixth segment are small and arranged in a row. The rostrum reaches well beyond the cornicles; the last three segments measure .26, .24 and .10 mm. The mesosternal tubercle is well developed; it is more or less truncate in shape and about as long as wide at the base. The metathoracic femora are 1.66 mm in length. The metathoracic tibiae are 2.15 mm in length. The hairs on the metathoracic tibiae are

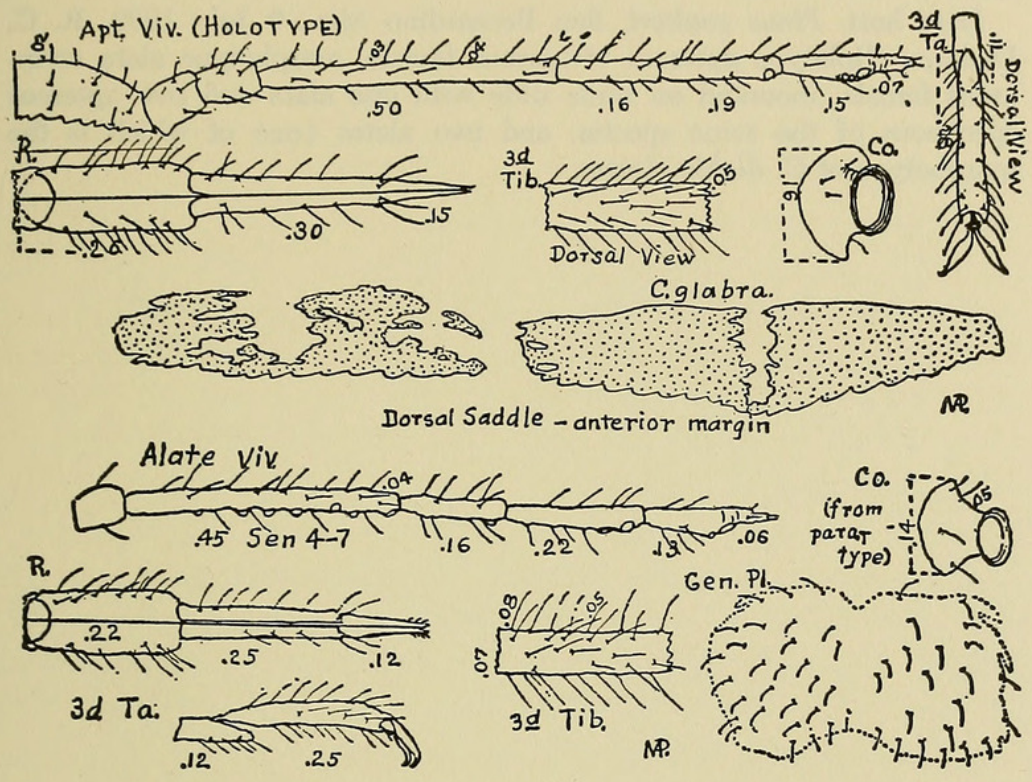
fairly numerous, similar on the outer and inner margins, and quite evenly distributed. The hairs are set at an angle of about 45 degrees and are .05 mm in length. The hairs on the ventral surface of the first metatarsal segment number about eighteen; this segment is .13 mm in length. The second metatarsal segment is .33 mm in length.

Abdomen. The hairs on the dorsal surface of the abdomen vary from those that are shorter than the width of the pigmented area from which they arise to those that are .06 mm in length. On this surface both types of hair are sparse, but the longer hairs are by far the fewest, and confined largely to the anterior end of the abdomen. The hairs on the ventral surface of the abdomen are about .07 mm in length and are numerous. The dorsal surface of the abdomen is reticulated. The posterior ventral surface has very poorly developed setulae arranged in transverse rows. The outer margin of the cornicles is very irregular. Hairs on cornicles few, about .08 mm in length, except for the hairs near the margin which are somewhat thicker and very short. Genital plate with median posterior region concave.

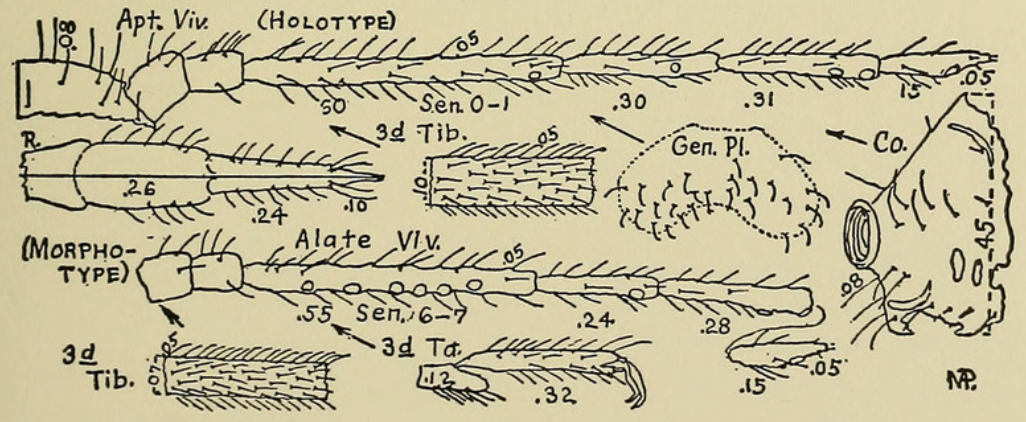
Alate viviparous female: Length from vertex to end of cauda 3.52 mm. Color much the same as apterous viviparous female. Length of antennal segments as follows: III, .55 mm; IV, .24 mm; V, .28 mm; VI, .5 + .05 mm. The third antennal segment has six secondary sensoria plus the primary. Hairs on third antennal segment not numerous; about .05 mm in length set at an angle of slightly more than 45 degrees. The media of one wing is twice branched; the other media is only once branched. Lateral lobes of thorax with fairly numerous hairs. Median posterior lobe of thorax with a few hairs on posterior margin and a few hairs scattered over the surface. Prothoracic tibiae 1.50 mm long. Hairs on outer margin of this segment fewer than those on the inner margin and spaced further apart than their length. Length of metathoracic femora 1.53 mm. Length of metathoracic tibiae 2.92 mm. Hairs on metathoracic tibiae numerous, not procumbent, set at angle of about 45 degrees, about .05 mm in length. On the outer margin of this segment the hairs are hardly more numerous towards the apex and not set at a lesser angle. Hairs on ventral surface of second metatarsal segment much more numerous than the hairs on the dorsal surface. Cornicles across outer margin measuring .37 mm. The outer margin is much more regular than the margin in the apterous form. The hairs on the cornicles are more numerous than the hairs on the cornicles of the apterous form, but are confined largely to the restricted area. The hairs near the margin are not short nor are they thick. The hairs on the dorsal surface of the abdomen are .03 mm in length; they are extremely sparse. The hairs on the ventral surface of the abdomen are very numerous and vary in length from .04–.06 mm.

Remarks: In Palmer's key to the genus *Cinara* in Aphids of the Rocky Mountain Region, this species presents difficulties, and cannot be keyed without question. The cornicles bear both long and short hairs (couplet 4) but the short hairs might be overlooked. If noted, it does not become

C. solitaria because the hairs on the cornicles are too few, and the hairs on the tibiae too short and fine. It is not *C. osborni* Knowlton because the cornicles have too few hairs and they are too fine and short, and the hairs on the abdomen too few and not of the correct type. If the cornicles are looked upon as having only one type of hairs as to length this species may be keyed to *C. glabra* (Gillette and Palmer) but to get to this species, the longer hairs on the anterior portion of the dorsum have to be overlooked. *C. glabra* in the apterous form has a large dorsal pigmented



CINARA DIABLA



CINARA MONTANESA

saddle which is lacking in this species, the setulae are too poorly developed, and the cornicles too large. This species seems to be most closely allied to *C. schwarzii* (Wilson) to which it will not key unless one overlooks the short hairs on the dorsum of the abdomen. This species differs from *schwarzii* in the longer pro- and metathoracic tibiae, short hairs on the dorsum of the abdomen, fewer hairs on the metathoracic tibiae and the hairs not more numerous towards the apex, two lengths of hair on the cornicles and shorter, less spinelike hairs on the pigmented areas anterior to the cauda.

Data host, *Pinus coulteri,* San Bernardino Mts., 9 July 1939, R. C. Dickson. Holotype apterous viviparous female, morphotype alate viviparous female, mounted on same slide with one alate and two apterous specimens of the same species, and two alates (one of which is the morphotype of *C. diabla* Hottes.



Hottes, F. C. 1961. "Two new species of Cinara from California (Aphidae) which have Pinus coulteri as host." *Proceedings of the Biological Society of Washington* 74, 95–100.

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