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## DESCRIPTIONS OF NEW SPECIES OF CINARA FROM WESTERN UNITED STATES

(APHIDAE)

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*Cinara serrai* n. sp.*Alate viviparous female*

Size and general color.—Length from vertex to tip of anal plate 5.43 mm. Color notes taken from cleared mounted specimens, none being available from life. Head and thorax brown. First two antennal segments concolorous with head, basal fourth of third segment pale, remaining portion of third shading to brown at the apex. Fourth, fifth and sixth antennal segments brown. Femora deep dusky-brown, metathoracic femora somewhat lighter near base. Tibiae with area near base blackish-brown, followed by a short yellowish area, which in turn shades in to dark dusky-brown, more than two thirds of the tibiae being of this color. Tarsi concolorous with end of tibiae. Spiracles within small brownish areas. Dorsum of abdomen with about four rows of small brownish wax pore plates. Transverse pigmented area, anterior to cauda almost divided. Cauda and anal plate brownish.

Head and thorax.—Median suture of head very dark and broad. Hair on vertex and dorsum of head sharp pointed and about .042 mm. in length. Ocular tubercles moderately well developed. Antennal segments with the following lengths: III .858 mm., IV .343 mm., V .328 mm., VI .114 + .051 mm. All antennal segments imbricated, the imbrications being rather broad and ridge-like. Hair on all segments pointed and spine-like, that on the third segment being about .0429 mm. in length, or about as long as the width of the segment. Third antennal segment with from two to three small secondary sensoria, located near the apex. Fourth and fifth antennal segments each with one secondary sensorium. Rostrum twisted but most likely reaching beyond metathoracic coxae. Third segment of rostrum .31 mm. in length, fourth segment .27 mm., fifth segment .143 mm. Lateral lobes of thorax with a few sharp pointed hair. Media twice branched, the second branch being closer to the first than to the margin of the wing. Pigmented portion of stigma continuing beyond stigma more or less as an arc. Hind tibiae 4.93 mm. in length. Hind tarsi with segments of the following lengths: first segment .143 mm. second segment .343 mm. total length of hind tarsi .414 mm. Hair on both inner and outer margins of the tibiae blunt to slightly knobbed at the end. Hair on outer margin about .0429 mm. in length, or less than half the width of the tibiae. First segment of hind tarsus with

about fifteen hair. The hair near the basal portion of the tibiae is very short, the hair near the apex are more inclined, and on the inner margin sharp pointed.

Abdomen.—Mid anterior region of abdomen with a small pigmented area. Dorsolateral portions of abdomen with four rows of wax pore plates. Spiracles surrounded by brownish pigmented areas. Base of cornicles more or less oval, about .586 mm. at the outer margin. Base of cornicles with a wax pore plate. Hair on cornicles very limited, there being about three irregular rows of fine sharp pointed hairs. The surface of the cornicles is quite rough. Hair on cornicles and dorsum of abdomen about .0286 mm. in length, hair on dorsum very sparse, that on ventral surface abundant. Surface of abdomen reticulated. Transverse pigmented area anterior to cauda with sharp pointed hair which are about .0429 mm. in length, these hairs are arranged in a single row along the posterior margin. Hair on cauda and anal plant not numerous, only moderately coarse, about .128 mm. in length.

*Apterous viviparous female.*

Color apparently similar to that of alate female, but notes from life are not available. Length from vertex to tip of anal plate 5.20-5.72 mm. Width of head through the eyes .886-.90 mm. Length of antennal segments as follows: III .858 mm., IV .286 mm., V .31-.32 mm., VI .114 + .057 mm. Secondary sensoria distributed as follows: III none, IV none to I, V I. Hair on third segment .0429 mm. some hair on this segment is shorter than length given. The hair on the third antennal segment is both dull and sharp pointed, none knobbed. Hair on vertex and dorsum of head as long as hair on third antennal segment, rather coarse, and more or less dull at the tip. Hind tibiae 5.00-5.85 mm. long. Length of hind tarsi .386 mm., length of first segment of hind tarsus .157 mm., length of second segment .314 mm. Width of cornicles at base .858-1.00 mm., length of longest hair on cornicles .0286 mm., all hair on cornicles sharp pointed. Length of hair on hind tibiae .042 mm., all hair slightly enlarged at the end except for that on inner margin near apex. Hair on dorsum of second segment of hind tarsus not enlarged at end, but dull. Hair on ventral surface of abdomen enlarged at end, when seen under some light conditions these hairs seem to be sharp pointed, because the end being very pale, does not show. The hair on the dorsum arise from very small pigmented spots. Mesosternal tubercle present.

In Palmer's key to the genus *Cinara* "Aphids of the Rocky Mountain Region" this species keys to *C. arizonica* (W) a species to which it has a close affinity, and from which it differs as follows: hair on hind tibiae much shorter, hair on head more tapering, less thick, and sharp pointed in the case of the alate viviparous female, hair on dorsum of abdomen much finer and not enlarged at the end, hair on cornicles in apterous females much finer, longer and sharp pointed. This species is also allied to *Cinara lassenensis* described herewith, from which it differs as follows: larger size, longer third antennal segment, second fork of media being closer to the first than to margin of wing, pigment in cell formed by radial sector, longer third and fifth segments of the rostrum, longer hind tibiae, longer second segment of the hind tarsus, shorter hair on hind tibiae, and wider base of cornicles.

Holotype alate viviparous female, Morphotype apterous viviparous female, both deposited in the collection of E. O. Essig. Data: *Pinus ponderosa* var. *jeffreyi*. Palomar Mt., San Diego Co., California. July 11, 1951. F. L. Blanc Coll.

This species is named for Junípero Serra, Franciscan friar, and outstanding Spanish pioneer of California, founder of the mission of San Diego, and eight other permanent missions of the twenty-one which the Franciscans built in the Golden State.

***Cinara kinoi* n. sp.**

*Alate viviparous female*

Size and general color.—Described from cleared specimens, color notes from life not being available. Length from vertex to tip of anal plate varying from 5.34-5.72 mm. Width of head through the eyes 0.92 mm. Head dusky brown, with hair on head arising from darker pigmented areas. Region of eyes forming stalk much darker than head. Median suture of head very dark. First two antennal segments dusky, third segment with basal region pale, apical third dusky, segments four and five with basal portions pale, remainder of segments dusky, sixth segment uniform dusky. Thorax brown, but not uniform in color. Pro- and mesothoracic femora dark dusky brown except for extreme base which is pale, metathoracic femora with basal one-third pale, remainder dark blackish-brown. Tibiae with short region near base black, followed by a short pale region or band, which is in turn followed by blackish-brown. Tarsi blackish-brown. Costal region and stigma of fore wings dark brown. Radial sector dark, media very pale, rather indistinct. Cornicles blackish-brown. Anterior region of abdomen with a few pigmented spots. Spiracles surrounded by dusky areas. Dorsum of abdomen with four rows of wax pore glands. Transverse pigmented area, anterior to cauda entire; anterior to this there are a few small pigmented spots, each of which gives rise to a hair. At times these spots are arranged more or less in a row.

Head and thorax.—Antennal segments with the following lengths: III .829-.915 mm., IV .347-.529 mm., V .328-.347 mm., VI .1 + .028 mm. Third antennal segment with from three to five rather small secondary sensoria, as a rule arranged in a straight row, and rather close to the apex of the segment. The sensoria on this segment are apt to be irregular in size. Fourth segment with from one to two secondary sensoria, and the fifth segment with one. Hair on third antennal segment sparse, blunt to slightly knobbed at end and considerably shorter than width of segment. Remaining antennal hair becoming progressively finer and more pointed towards end of antenna. Rostrum with basal half of second segment pale, remainder of segment spotted, segments three four and five brown. Media twice forked, second fork of media closer to margin of wing than to first fork. Mesosternal tubercle present. Hind tibiae varying from 5.15-5.84 mm. Hair on hind tibiae sparse, spine-like in quality, with the end dull to slightly knobbed, in length about equal to one-half the width of the tibiae. Hair on outer margin of tibiae longer and more spine-like than that on inner margin. Hair on inner margin near apex of tibiae more or less sharp pointed. First segment of hind tarsus with about eighteen hairs, and about .157 mm. long, second segment of hind tarsus about .347 mm. in length. Hair on ventral surface of second

segment of hind tarsus sharp pointed, that on dorsal surface slightly knobbed or dull at the end.

Abdomen.—Cornicles with margins very irregular, measuring .50-.57 mm. Hair on cornicles few, rather thick and blunt at the end. Sharp pointed hair on the cornicles absent. Cornicles often with a wax pore plate. Surface of abdomen reticulated. Hair on dorsum of abdomen sparse, short, thick and blunt to slightly knobbed at the end. Hair on ventral surface of abdomen more numerous than that on dorsum, slightly longer, and thinner, also slightly knobbed. The knobbed condition of the ventral abdominal hair is often difficult to determine because the end of the hair is pale, thus unless looked for the end of the hair will not be seen. A few of the hairs on the dorsum arise from small pigmented spots. Hair on cauda and anal plate long and sharp pointed. Transverse pigmented spot divided with a row of knobbed hair along the posterior margin of each spot. At times there may be a partial second marginal row of hair.

*Apterous viviparous female*

This form appears to be very similar to that of the alate viviparous female. Length from vertex to tip of anal plate varying from 4.36-5.79 mm. Antennal segments with the following lengths: III .858-.996 mm., IV .31-.37 mm., V .286 mm., VI .1 + .04 mm. Rostrum reaching to end of metathoracic coxae. Fifth segment of antennae with from one to two secondary sensoria. Cornicles .572 mm. Hind tibiae 3.71-4.57 mm. Hind tarsi .386-.429 mm. Mesosternal tubercle present.

This species is allied with *Cinara serrai* described herewith, from which it differs in the nature of the hair on the dorsum. From *Cinara arizonica* (Wilson), it differs in the shorter, thicker hair on the dorsum, the presence of knobbed hair on the ventral surface of the abdomen, the absence of thin pointed hair on the cornicles and lateral surface of the abdomen in the alate. *Cinara arizonica* (W) also has a mesosternal tubercle.

Holotype, alate viviparous female, Morphotype, apterous viviparous female, both deposited in the collection of E. O. Essig. Data: *Pinus ponderosa* Tanbark Flat, Los Angeles Co. California, July 15, 1952, E. L. Anderson Coll. This species has also been taken at Santa Ana, California.

This species is named for Father Eusebio Francisco Kino S. J., the Padre on horseback, and the incomparable pioneer of the Southwest and the Pacific Coast.

*Cinara lassenensis* n. sp.

*Alate viviparous female*

Size and general color.—Length varying from 4.66-5.00 mm., described from cleared specimens, data from life not being available. Head and thorax brown. First two antennal segments concolorous with head, third, fourth, fifth antennal segments pale basally shading to brown at the apex, the pale area on the third segment being quite extensive. Sixth segment uniform brown. Femora pale at the base shading to dark brown. Tibiae with a short area near base blackish-brown, this area is followed by a yellowish band which in turn is followed by a uniform dark brown area. Tarsi concolorous with apex of tibiae. Mid-region of anterior portion of abdomen with a small brownish pigmented spot.

Dorsolateral regions of abdomen with a few scattered spots. Cornicles brown. Transverse pigmented area divided or almost so, anterior to this there may be a few very small pigmented spots.

Head and Thorax.—Width of head across eyes .817 mm. Ocular tubercles well developed. Rostrum reaching to or slightly beyond the metathoracic coxae. Third segment of rostrum .286 mm. long, fourth segment .271 mm., fifth segment .10 mm. in length. Lengths of antennal segments as follows: III .786-.80 mm., IV .314-.343 mm., V .314-.347 mm., in two of three cases the fifth segment is longer than the fourth, VI .1 + .07 mm. Secondary sensoria distributed as follows: III 1-3, IV 0-1, V I. On the third segment the secondary sensoria are small and are near the end of the segment. All antennal segments imbricated, the imbrications being low, rather broad and ridge-like. Antennal hair sparse, coarse, and only a little longer than half the width of the segment. Most of the hairs on the third segment are dull at the tip, most of the hairs on the fourth and fifth segments are sharp pointed. Head with a median suture. Dorsum of head with dull pointed hair which are about .028 mm. in length. Lateral lobes of thorax with a few dull pointed hairs confined for the most part to the inner and posterior margins. Media twice branched, the second fork of the media being closer to the margin of the wing than to the first fork.

The hind tibiae are 3.71 mm. in length, the second segment of the metatarsus is .30 mm. in length. The hair on the metathoracic tibiae is .0572 mm. in length, or but slightly more than half the width of the tibia, all tibial hair is spine-like and dull at the tip except for the hair on the inner margin near the apex which is sharp pointed. The first segment of the hind tarsus has about eighteen hairs. All of the hair on the second segment of the hind tarsus are sharp pointed, that on the dorsal side being longer and less fine. Mesosternal tubercle apparently absent, but present in a nymph.

Abdomen.—Base of cornicles quite irregular and about .50-.60 mm. across. Base of cornicles often with a wax pore plate. Surface of cornicles rather rough with a few short, sometimes rather stubby hair which may be either sharp or dull-pointed. Surface of abdomen reticulated. Surface of abdomen with exceedingly sparse hair, the hair being at times very short and stubby, at other times short and sharp pointed. Hair on ventral surface of abdomen slightly longer than that on dorsum and sharp pointed, and much more abundant. The hair on the dorsum is about .028 mm. in length. The hair on the transverse pigmented spot is spine-like, about .0429 mm. in length and dull to slightly enlarged at the tip.

This species is allied to *Cinara americana* described herewith and differs from that species in having blunt hair on the head and on the transverse pigmented area. The hair on the cornicles are also shorter and thicker and sometimes dull at the tip. From *Cinara arizonica* (W) the nature of the hair on the dorsum separate the two species at once. The hair on the transverse pigmented spot of the species described by Wilson being longer, the hair on the dorsum being longer, more spine-like, more dull at the tip. The hair on the tibiae of *arizonica* are also much longer than the hair on the tibiae of *lassenensis*.

Holotype alate viviparous female, deposited in the collection of E. O.

Essig. Data: Hopk. U. S. 21,255a. *Pinus ponderosa*. Mt. Lassen National Park, California, June 19, 1935. W. H. Lange Coll.

*Cinara americana* n. sp.

*Alate viviparous female*

Size and general color.—Described from a single alate viviparous specimen, on which color notes taken in life are not available. Length from vertex to tip of anal plate 5.13 mm. Head and thorax of several shades of brown. Only pro- and mesothoracic legs present, femora uniform dark brown, tibiae concolorous with end of femora for a short distance, this area followed by a light yellowish area, which in turn shades to dark brown. Tarsi dark brown. First and second antennal segments brown, third and fourth antennal segments with slightly less than basal half yellowish shading to brownish, fifth segment also sixth segment brown. Stigma brown with inner portion darker, scale-like. Cornicles brown. Cauda and anal plate dusky brown on apical halves. The spiracles arise from pigmented areas. Dorsum of abdomen with four, more or less, rows of small round spots. Anterior to the cauda, the transverse pigmented area is almost divided in the middle, the posterior edge of this area carries a row of sharp pointed hairs, which are rather coarse and about .0572 mm. long.

Head and thorax.—Width of head through the eyes .829 mm. Head with a median suture. Dorsum of head, and anterior margin with a moderate number of fairly coarse sharp pointed hair, which are about .429 mm. long. The hair on the third antennal segment are about of the same length. Antennal segments with the following lengths: III .729 mm., IV .328 mm., V .328 mm., VI .114 + .0572 mm. One antenna has the third segment with three secondary sensoria, the other antenna has six secondary sensoria. The sensoria are small and confined to the apical half of the segment, the segment with six sensoria has two of the sensoria not in the row. Antennal hair very sparse, sharp pointed, rather coarse, and as a rule slightly shorter than the width of third segment. On the fourth and fifth segments, the hairs are about equal to the width of the segment. Fourth segment with from 0-2 secondary sensoria, fifth segment with I. Ocular tubercles well developed. Rostrum reaching about to middle of abdomen, third segment .286 mm. long, fourth segment .243 mm. fifth segment .128 mm. in length. Last three segments of the rostrum brown, second segment of rostrum pale at the base followed by a spotted area, which is in turn followed by brown. Lateral lobes of thorax with a few scattered hairs, these are about the same length as the hair on the head, and like those sharp pointed. Second branch of media closer to margin of wing than to the first branch. There appears to be a very small mesosternal tubercle present, but this is very much smaller and much shorter than the mesosternal tubercle in the apterous viviparous female, where this structure is finger-like.

Abdomen.—Cornicles with base more or less oval with the longest length about .529 mm. Base of cornicles with about three rows of very fine sharp-pointed hair, the hair being about .0429 mm. in length. The surface of the abdomen is very finely reticulated. The hair on the dorsum of the abdomen is very sparse, fine, sharp pointed, and about as long as that on the cornicles. The hair on the cauda and anal plate is longer

and coarser than the hair on other parts of the body, being from .114-.143 mm. in length.

*Apterous viviparous female*

Length from vertex to end of anal plate 5.70 mm. Color notes from life not available, but apparently much like color of alate viviparous female. Antennal segments with the following lengths: III .786 mm., IV .314 mm., V .30 mm., VI .1 + .07 mm. The fifth segment has a single secondary sensorium, and the same is true of the fourth segment. Antennal hair fine, sharp pointed, sparse, and about as long as width of segment, with the exception of the hair on the basal third of the third segment which is shorter. The head has a median suture which is continued as a broken suture on the thorax. The vertex and dorsum of the head are provided with a moderate number of fine sharp pointed hairs which are about .0572 mm. in length. Rostrum about as in alate female. All femora dark brown, even at the base. Tibiae dark brown at the base, this area is followed by a short yellowish area, which quickly shades to dark brown, so that more than the apical halves of the tibiae are of that color. The hind tibiae are 4.14 mm. in length. The hind tarsi are .40 mm. long, the first segment being .157 mm. and the second .328 mm. in length. The tibial hairs are only moderately coarse, set at an angle of about forty-five degrees except for those on the apical third which are more inclined, such hairs are more apt to be dull at the tip than sharp pointed. All hairs rather short, the longest being about .0429 mm. in length, or slightly more than one third the width of the tibiae in length. First segment of hind tarsis with about twelve hairs. Base of cornicles very irregular and about .80 mm. across. Cornicles with few hairs, but with more than in the alate female. Transverse pigmented area anterior to cauda almost divided at middle, with a row of spine-like hair along posterior margin, these hairs are from .057-.07 mm. in length. Anterior to the pigmented spot just mentioned there is another irregular pigmented spot, almost divided in the middle, which shows reticulations quite well, this spot has a few hairs. Dorsum of abdomen with very fine reticulations, and with very few fine sharp pointed hairs. The mesosternal tubercle is long and finger-like.

Holotype alate viviparous female, Morphotype apterous viviparous female, both mounted on the same slide, deposited in collection of E. O. Essig.

Data: *Pinus ponderosa* just below new growth. Two miles East of Butte Falls, Oregon, June 7, 1941. J. Schuh Coll.

This species is allied to *Cinara lassenensis* described herewith, from which it differs as follows: The hairs on the head are fine and sharp pointed, so are the hairs on the transverse pigmented area, the hair on the dorsum of the abdomen is longer and finer. The femora are a more uniform dark brown, and not lighter near the base. The hair on the antennae is finer and not quite so long. In Palmer's key to the genus *Cinara* "Aphids of the Rocky Mountain Region" this species keys to *Cinara arizonica* (W) from which it differs in having the hair on the head fine and sharp pointed, shorter hair on the hind tibiae, sharp pointed hairs on the transverse pigmented area, and longer and finer hair on the abdomen cornicles.

***Cinara californica* n. sp.***Alate viviparous female.*

Size and general color.—Described from cleared specimens, data from life not available. Length from vertex to tip of anal plate varying from 2.80-3.29mm. Width of head through the eyes .829mm. Head and thorax pale brown, with stalks of eyes and thoracic lobes much darker. First and second antennal segments about color of head. Third antennal segment pale yellowish except for short region near apex which is light brownish. Antennal segments four, five and six a uniform light brown. Pro- and mesothoracic femora brown except for short region near base, metathoracic femora with region near base pale and much longer than pale region on other legs, remaining portion of femora brown. All tibiae a uniform deep-brown. Tarsis brown, but not as dark as tibiae. Rostrum with second segment yellowish, remaining segments light brown. Stigma and costal region of fore wings pale brown. Cornicles pale brown.

Head and thorax.—Antennal segments with the following lengths: III .54-.58mm., IV .214-.224mm., V .243-.271mm., always longer than IV, VI .143-.171 + .071 mm. Antennal hair long and fine, set at an angle of sixty or more degrees. Not all hair of the same length, the long and the short intermixed. The longest hair more than two times width of segment in length. Third antennal segment with from seven to nine secondary sensoria, fourth segment with from zero to two, the fifth segment with no secondary sensoria. On the third segment the secondary sensoria are arranged for the most part in a straight row, sensoria not so arranged are apt to be smaller, two or more sensoria may be joined. The sixth segment is long and tapering, the marginal sensoria on this segment are large, have wide rims whose outer edges are irregular, these sensoria are more or less closely associated. The compound eyes have well developed stalks, ocular tubercles present but not always easily seen. Anterior margin of head rather flat, median suture of head well developed. Media of fore wings twice forked, the second fork of media closer to the margin of wing than to the first. All veins rather indistinct. Hind tibiae 2.22-2.36mm. First segment of hind tarsis .171mm. second segment of hind tarsis .347mm. Hair on outer margin of hind tibiae more upstanding, about 45 degrees, than that on inner margin, also coarser. Not all tibial hair of equal length, longest hair on outer margin about two times width of segment in length, intermixed with shorter hair. Hair on inner apex of tibiae short and fine, almost bunched. Hair near apex of tibiae more drooping than that closer to base.

Abdomen.—Cornicles .386-.457 mm. across base which has the outer margin very irregular. The cornicles are provided with two kinds of hair, a condition which indicates that the coarser hair of the abdomen, which arise from pigmented spots have, together with their pigmented bases been incorporated into the cornicles. The fine hair on the cornicles is similar to the fine hair on the abdomen, where it does not originate from pigmented spots, these hairs are more abundant than the coarser more spine-like hair, on both the cornicles and the dorsum of the abdomen. The transverse pigmented spot is entire, broad, and provided with two rows of long spine-like hair along its posterior margin. Dorsum of abdomen provided with four rows of wax pore plates. Cauda and anal plate brownish, with two kinds of hair.

*Apterous viviparous female.*

Color apparently much like that of alate viviparous female. Length from vertex to tip of anal plate 3.14-3.45mm. Length of antennal segments as follows: III .543-.586mm., IV .241-.271mm., V .257-.314mm., VI .143-.157 + .085 mm. Width of cornicles at base .44-.50mm. Hind tibiae 2.22. Hind tarsi .143 + .347mm. Rostrum with segments four and five and half of third segment beyond metathoracic coxae. Transverse pigmented spot with two rows of hair, anterior to this spot the pigmented spots from which coarse hair arise form a loose network or partial band. Primary sensorium on third antennal segment absent, as a rule that on the fourth segment is also lacking. Fifth antennal segment sometimes with one secondary sensorium.

This species is allied to *Cinara longispinosa* Tissot, but the eye stalks are less well developed, nor is the vertex of the head quite so flat, the hairs on the tibiae are also shorter, the base of the cornicles larger. From *Cinara pinea* Mordvilko, which is the *Lachnus pini* Weed of Patch, *Lachnus pini* (L) of Wilson. *Cinara pini* (L) of Hottes and Frison and the *Cinara pini* (L) of Börner, 1952, this species can be distinguished at once by the uniform dark colored tibiae.

Holotype, alate viviparous female, morphotype, apterous viviparous female. Both deposited in the collection of E. O. Essig. Collection data as follows: One Chinese Pine, *Pinus tabulaeformis*. University of California Campus, Berkeley, California April 2, 1936. E. O. Essig Coll.

*Cinara onatei* n. sp.

*Alate viviparous female.*

Size and general color.—Described from one alate viviparous female, color notes taken from life not available. Length from vertex to tip of anal plate 3.86mm. Head brown, first two antennal segments concolorous with head, segments three, four and five lighter near base than apically, sixth segment brown. Thorax brown. Femora dark brown except at extreme base. Pro- and mesothoracic tibiae dark brown near base, followed by a rather extensive yellowish area, which shades into brown, metathoracic tibiae almost a uniform deep brown. Tarsi dark brown. Costal region of wing dark brown. Cornicles brown. Cauda with only apical region brown, anal plate apparently the same. Pigmented area anterior to cauda quite regular in outline, but somewhat narrower in middle. Spiracles surrounded with small brownish areas. Dorsum of abdomen with four rows of brownish spots.

Head and thorax.—Rostrum surpassing metathoracic coxae. Ocular tubercles well developed. Antennal segments with the following lengths: III .50mm., IV .185mm., V .257mm., VI .085 + .071mm. Third antennal segment with three to six secondary sensoria, fourth segment with no secondary sensoria, fifth segment with one. Secondary sensoria on third antennal segment large and arranged in a straight row. Hair on antennae sparse, that on third segment shorter than width of segment, or just equal to width of segment, hair on fourth and fifth segments longer than width of segment but less than two times width of segment in length. All antennal hair rather coarse and set at an angle of about forty-five degrees. Median suture of head dark brown. Width of head through the eyes .657mm. Length of hair on dorsum of head .071mm.

These hairs are longer than the hair on the antennae. Lengths of the third, fourth and fifth segments of the rostrum as follows: .20, .185, .071mm. Second branch of media closer to the first branch than to the margin of the wing. Hind tibiae 2.28mm. First segment of hind tarsus .114mm. Second segment .257mm. Hair on hind tibiae about .0429mm. long, or about one fourth shorter than width of tibiae, set at an angle of about forty-five degrees.

Abdomen.—Dorsum of the abdomen with very few hairs, in sharp contrast to the ventral surface which has many. These hairs are fine, and vary in length from .057-.071mm. Posterior to the cornicles the hair on the dorsum is arranged in two or three more or less regular transverse rows. Base of cornicles quite regular, about .50mm. across, with the outer portion almost free from hair, the more deeply pigmented portion of the cornicles associated with the restricted portion with a few hairs which are about .071mm. in length. Pigmented region anterior to cauda with a single row of about eight hairs, which are about .1mm long. Both the cauda and anal plate are provided with numerous long hairs. The surface of the abdomen is reticulated.

*Apterous viviparous female.*

Size and general color.—Color notes taken from life not available. Length from vertex to tip of anal plate varying from 3.93-4.00mm.

Head and thorax.—Only the apical portions of antennal segments three, four and five pigmented brown, sixth segment brown. There are no secondary sensoria on the third and fourth antennal segments, the fifth segment has one. Antennal hairs sparse, that on third segment about equal to half width of segment, but sometimes less, that on fifth segment about as long as the width of segment but no longer. Rostrum of all specimens twisted, most likely long enough to reach the middle of the abdomen. Length of antennal segments as follows III .529-.54mm., IV .185-.20mm., V .228-.24mm., VI .07 + .07mm. Hind tibiae varying from 2.64-2.78mm. in length, hind tarsi varying from .328-.347mm. second segment of hind tarsus .271mm. in length. Hair on hind tibiae short, rather coarse, set at an angle of about forty-five degrees. Tibiae with region near base dark brown, this region is followed by an extensive pale yellowish area which shades into brown. Tarsi brown. Base of cornicles .715mm. Hair on cornicles as in alate. The anterior dorsum of abdomen provided with a much broken irregular pigmented area. Anterior to the transverse pigmented area there are a few small pigmented spots.

This species is in some respects suggestive of *Cinara ponderosae* (W) from which it differs as follows: much shorter hair on antennae and legs, more extensive yellowish areas on legs, seemingly fewer hairs on cornicles and a wider cornicle base in the apterous viviparous female. Neither the alate or apterous forms of this species can be keyed to *ponderosae* in Palmer's key to the genus *Cinara* "Aphids of the Rocky Mountain Region," the forms keying to *C. apini*, a species with which they have little in common except the characters made use of in the key.

Holotype alate viviparous female. Morphotype apterous viviparous female. Both types mounted on the same slide which has been deposited in the collection of E. O. Essig. Data: Hopk. U. S. 21,253-a On *Pinus jeffreyi*. Lassen National Park, California, June 19, 1935, W. H. Lange Coll.

*Cinara anzai* n. sp.

*Alate viviparous female.*

Size and general color.—Color notes from life not available. Length from vertex to end of anal plate varying from 4.09-4.43mm. Width of head through the eyes .643mm. Head and thorax dark dusky-brown, perhaps black in life. Femora with a short region near base rather pale, remainder of femora dark dusky-brown, perhaps black in life. Tibiae sometimes a uniform black, at other times a dusky-brown, following a black area near base. Cornicles dusky-brown. First two antennal segments concolorous with head, remaining segments blackish, except for segments three and four which are somewhat lighter near the base. Abdomen with about two transverse rows of pigmented spots near anterior end, and four rows of slightly larger pigmented spots latero-dorsally. Spiracles surrounded by pigmented areas. Cauda and anal plate, also transverse pigmented area anterior to cauda dusky.

Head and thorax.—Width of head through the eyes .643mm. Head with a very dark well defined transverse suture. Antennal segments with the following lengths: III .486-.53mm., IV .20-.25mm., V .27-.29mm., VI .11-.13 + .04mm. Third segment with from eight to twelve secondary sensoria, arranged in a straight row, these sensoria are large and very tuberculate, most common number of sensoria on this segment nine. Fourth segment with from one to two secondary sensoria, as a rule, one. The only secondary sensorium on the fifth segment has much the appearance of a primary sensorium, being very large in size. If smaller secondary sensoria are present on the third antennal segment they are very apt not to be in the regular row. Antennal hair fairly numerous, slightly more than two times width of segment in length, but less than three times, set at an angle of about sixty degrees. As may be expected in a species where the secondary sensoria are so large and numerous, the side of the segment on which the sensoria are located has relatively few hairs. Ocular tubercles moderate in size. Second segment of rostrum pale at the base, spotted near apex, third segment of rostrum dark brown, rather wide and about .171mm. in length, fourth segment wide for its length which is .157mm. The fifth segment of the rostrum appears to be rather short, its actual length being .0429mm, it is slightly less than two times its width at the base in length. The hair on the dorsum of the head is about as long as those on the antennae and of about the same quality. The hind femora are rather thin on the basal fourth, but are of normal width beyond. The femora are clothed with long fine hairs which are upstanding. The tibiae are provided with numerous long fine hairs which are for the most part two times the width of the tibiae in length, actually they measure about .143mm. The hairs near the proximal portion of the tibiae are quite upstanding, arising at an angle of about sixty degrees, the hairs at the middle of the tibiae are more inclined and arise at an angle of about forty-five degrees. The hind tarsi are .386mm. long, the first segment has about ten hairs on the ventral surface. The media is twice-branched, the second branch being closer to the first than it is to the margin of the wing. The radial sector is often curved.

Abdomen.—The base of the cornicles is very irregular in shape, commonly the cornicles are longer than wide, the ration being .35-.26mm. The

cornicles have numerous hair of the same length and quality as those found on the abdomen. Dorsum of abdomen with numerous hairs, of fine quality and about .1mm. in length. Transverse pigmented spot anterior to cauda divided in to two rather narrow spots which show imbrications, the posterior margins of which carry a row of hairs, sometimes there are two rows of hairs for part of the distance. These marginal hairs are .143mm. in length. The base of the cauda is without pigment.

This species seems most closely allied to *Cinara carolina* Tissot from which it differs as follows: smaller base of cornicles, more irregular base of cornicles, much darker legs, longer hair on tibiae, shorter and thicker terminal segments of the rostrum, and longer hair on the antennae.

Holotype alate viviparous female, deposited in the collection of E. O. Essig. Data: *Pinus albicaulis*, Bumpus Hell, Lassen National Park, California. July 2, 1947, R. L. Usinger Coll.

This species is named for Juan Bautista de Anza, commander of Tubac, an Arizona fort, and founder of San Francisco, 1776.

***Cinara inscripta* n. sp.**  
*Apterous viviparous female.*

Size and general color.—Length from vertex to tip of anal plate varying from 3.71-4.14mm. Color described from cleared specimens, data from life not being available. Head and thorax brown, first two antennal segments concolorous with head, remaining antennal segments rather pale except for extreme apical portions, and all of sixth which are light brown. Femora with basal portions pale brown, remainder of femora brown. Pro and mesothoracic tibiae pale yellowish except for short distance near apex which is light brown. Metathoracic tibiae with more than half yellowish remainder of tibiae brown. Tarsi concolorous with tibiae. Cornicles anal plate and cauda brown. Mid dorsal region of abdomen with about eight rows of brownish irregular pigmented areas arranged in pairs, these areas at times enclose clear spaces, sometimes these areas appear to fragment in to small pigmented spots which in turn form a very loose mesh. In addition to the pigmented areas just mentioned, there are lateral to these two or three rows of pigmented spots of the nature of wax glands. The spiracles arise from brownish areas. The transverse pigmented spot anterior to the cauda is divided in to two rather narrow areas. The median pigmented areas may at times become joined by a narrow bridge which has a tendency, when present, to become wider towards the anterior end of the specimen.

Head and thorax.—Width of head through the eyes .67mm. Rostrum reaching to or slightly beyond the cornicles, the last three segments with the following lengths: III .214mm, IV .171mm., V .071mm. The antennal segments have the following lengths: III .56-.60mm., IV .21-.23mm., V .24-.26mm., VI .1 + .04-.05mm. The secondary sensoria are distributed as follows: III 0-2, IV 1, V 1. Hair on antennae sparse, spine-like, sharp pointed, that on third segment just short of being as long as width of segment. Hair on head longer and finer than that on antennae being about .085mm. in length, in contrast to the hair on the third antennal segment which are only .057mm. in length, or in some cases slightly less.

Length of hind tibiae varies from 2.50-2.65mm. Hind tarsi .35mm. long. Hair on hind tibiae sharp-pointed, inclined at an angle of about

forty-five degrees, fairly numerous, less than half width of tibiae in length. Hair on proximal portion of tibiae much shorter than this. First segment of hind tarsus with about twelve hairs.

Abdomen.—Base of cornicles .60-.70mm. outer margin of cornicles very irregular often enclosing clear areas. Base of cornicles often with wax glands. Hair on cornicles similar to that on dorsum of body about .071mm. in length. Hairs on transverse pigmented areas arranged in a single row along the posterior margin, about .143mm. in length.

Holotype apterous viviparous female, deposited in the collection of E. O. Essig. The extensive pigmented areas on the dorsum of the abdomen of this species distinguish it from all allied forms. In Palmer's key to the genus *Cinara* "Aphids of the Rocky Mountain Region" the second segment of the hind tarsus is more than one-tenth the length of the hind tibiae, the ratio being .314-2.50-2.65mm. The species keys to couplet 14. The hairs on the hind tibiae are not blunt, the species is not *coloradensis*, nor are the hairs on the hind tibiae fine, the species is not *schwarzii* for the hairs are not drooping, nor has *schwarzii* large pigmented areas on the dorsum. The species is also larger than *schwarzii*.

Data: *Pinus albicaulis*, Timberline Lodge, Mt. Hood, Oregon. Aug. 6, 1940, R. L. Usinger Coll.

*Cinara oregoni* n. sp.

*Apterous viviparous female.*

Size and general color.—Length from vertex to end of anal plate varying from 4.00-4.43mm. Described from cleared specimens, color notes from life not being available. Head and thorax dark brown. First antennal segment concolorous with head, second segment pale yellowish, third, fourth and fifth segments pale yellowish except for extreme apical portions which are brownish, all of sixth antennal segment brownish. Femora brown with basal portions somewhat lighter, the lighter area on the metathoracic legs being more extensive. All tibiae with basal portions dark brown, pro- and mesothoracic tibiae with extensive yellowish areas which shade into brown a short distance from the apex. Metathoracic tibiae with yellowish area less extensive than on other legs, more than half being brown. Tarsi brown. Abdomen with anterior mid-dorsal portion with a small brownish pigmented area. Posterior region of abdomen anterior to cauda with a few very small, very irregular brownish pigmented spots. Anterior dorsum of abdomen with two transverse rows of wax pore glands, dorsolateral regions of abdomen with two similar rows. Second segment of rostrum pale yellowish free from spots, third, fourth and fifth segments pale brownish. Base of cornicles brown. Transverse pigmented area anterior to cauda divided.

Head and thorax.—Width of head through the eyes .757mm. Ocular tubercles moderately well developed. Rostrum reaching to middle of the base of the cornicles. Third segment of rostrum .20mm. in length, fourth segment .171mm. long, fifth segment .057mm. in length. Antennal segments with the following lengths: III .52-.57mm., IV .21-.26mm., V .29-.31mm., VI .10 + .04mm. Secondary sensoria distributed as follows: III 0-1, IV 0-1, V 1. Hairs on antennae fairly numerous, that on anterior margin of third segment longer than width of segment, but less than twice width of segment in length. Hairs on posterior margin of third segment varying from shorter than width of segment to about

equal to width of segment. Head with median suture, hairs on anterior margin of head about .171mm. in length, much longer than that on antennae. Hind tibiae varying from 2.57-2.78mm. in length. Hair on hind tibiae fairly numerous, that on outer margin of tibiae longer than that on inner, being about equal to width of tibiae, or about .071mm. in length. Length of hind tarsi .40mm.

Abdomen.—Base of cornicles varying from .51-.64mm. and like dorsum of abdomen provided with numerous fine sharp pointed hairs, which are about .10mm. in length. The two pigmented spots anterior to the cauda have two rows of fine long hairs on their posterior margins, these hairs are about .143mm. long. The cauda has a clear area near the base.

Holotype, apterous viviparous female, deposited in the collection of E. O. Essig. Data: *Pinus albicaulis*, Timberline Lodge, Mt. Hood, Oregon. Aug. 6, 1940. R. L. Usinger Coll.

In Palmer's key to the genus *Cinara*, "Aphids of the Rocky Mountain Region," which does not cover the region, from which the Aphids described herewith came, this species keys to *Cinara edulis* (Wilson), a species with which it has little in common, not being black, the body hairs being much longer and more abundant, the base of the cornicles being larger and clothed with much more hair. The hosts of the two species also differ.

*Schizolachnus pineti* (Fabricius)

Viviparous females, oviparous females and males of this species were taken by Essig on *Pinus* sp. at Oakland, California Dec. 23, 1938. These specimens agree with material sent by Dr. D. Hille Ris Lambers taken by him in Holland. Our slides can not be determined as this species in Palmer's key to the genus *Schizolachnus* in "Aphids of the Rocky Mountain Region" nor can the specimens sent from Holland, because the tibiae are not wide enough, except in the case of oviparous females.

*Schizolachnus pini-radiatae* (Davidson)

Apterous viviparous females of this species were taken on *Pinus coulteri* May 8, 1942, by D. DeLeon and C. B. Eaton at San Bernardino, California. The tibiae of this species are very dark, almost black, and longer than the tibiae of *S. pineti*, which are at most only slightly dusky.

*Cinara cupressi* (Buckton)

Our determination of this species has been confirmed by Dr. D. Hille Ris Lambers of Holland. Taken on *Cupressus macrocarpa* in Golden Gate Park, San Francisco, California Oct. 5, 1935. This may be the first record of this species from America.

*Cinara louisianensis* Boudreaux

This species was taken by E. O. Essig on *Thuja orientalis*, University of California Campus, Berkeley, California April 16, 1935, many years before it was described. Apparently this is the first report since its description by Boudreaux.

*Cinara costata* (Zett.)

We have two records from California, apparently the first from the United States, on *Picea* U. C. Campus, Berkeley, California Oct. 23, 1935, W. D. Riley Coll. and *Picea sitchensis* Salinas, California, Oct. 4, 1942, W. H. Lange Coll.



Hottes, F. C. and Essig, E. O. 1953. "Descriptions of new species of *Cinara* from western United States (Aphidae)." *Proceedings of the Biological Society of Washington* 66, 159–172.

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