

WEST COAST AND OTHER JASSIDÆ (HOMOPTERA).

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Most of the material upon which the following descriptions are based belongs to the National Museum, and the species are here described at the request of the curator, Dr. W. H. Ashmead.

Eutettix pannosa, n. sp.—Resembling *saucia* and *scaber* in general appearance, smaller, darker, and with longer vertex and more generally reticulate elytra. Length, ♀ 4.5 mm., ♂ 4 mm.; width, ♀ 1.5 mm., ♂ 1.25 mm.

Vertex right angled, apex blunt, three-fifths as long as its basal width, two-thirds as long as the pronotum, half longer on middle than against eye, disc slightly sloping, flat, with the apex elevated. Face retreating, forming an acute angle with the vertex, front rather broad. Elytra rather short, compressed at the apex, venation weak, irregularly reticulate, the second cross nervure sometimes present.

Colour: vertex and pronotum pale cinereous or milky, heavily and very evenly irrorate with brownish fuscous, except that the anterior margin of the vertex presents six more or less definite dark spots, and the lateral margin of the pronotum is narrowly lined with ivory white. Elytra with the inner halves resembling the pronotum in colour, the outer half on either side milk white, with more or less of brownish reticulation, especially along the costal margin. The brown area on the disc being heaviest along the margin, and shading out towards the suture, the milk white area being continuous with that on the margin of the pronotum and including the claval suture to just before the middle, when it narrows down obliquely to one-half the former width, and becomes obscured by the heavier reticulation toward the tip. Face closely and evenly irrorate with fuscous.

Genitalia: female segment twice the length of the preceding posterior margin, rounding with a rather broad, blunt, slightly bilobed median projection, surface of the segment depressed either side of this tooth; male valve triangular, narrower than the ultimate segment, and about two-thirds its length; plates long, triangular, apices acute, three times the length of the valve.

Described from eight specimens from the National Museum collection, "Los Angeles Co., California, Coquillett collector."

Eutettix fenestrata, n. sp. Form of *pullata* nearly resembling *jucunda*, but more clearly marked. Longer and narrower than either

species. Pale, irregularly maculate with brown; elytra with numerous milk-white spots. Length, ♀, 6 mm.; width, 1.5 mm.

Vertex with the margins almost parallel, two and one-half times wider than long, scarcely half the length of the pronotum; the disc sloping, but slightly depressed, transversely angled with the front, the margin thick and slightly produced. Front longer and narrower than in *jucunda*, the margins nearly straight. Elytra long and narrow, folded at the apex; venation similar to that of *jucunda*, the nervures stronger, central antepical cell very long, narrow and nearly parallel margined through the median half, where there are three or four rather strong cross reticulations, both ends enlarged, the anterior the larger and somewhat irregular in shape, the posterior sexangular; the claval nervures tied before the middle and the outer one with a cross nervure to the suture.

Colour: vertex pale creamy yellow, a pair of crescentiform spots at the apex, and a pair of dots inside the ocelli black, a narrow transverse band back of these and parallel with the margin, dark at the ends, shading to brown at the middle and spreading out as a wash on the disc. Back of this band are three brownish ovals, the outer ones connected with the margins of the eyes by dark brown dots. Pronotum pale cinereous, with numerous fine irrorations posteriorly, and a few large dark ones on the anterior half. Scutellum orange, washed with brown, four ivory white points and two brown dots on disc. Elytra brown, the nervures still darker, a large number of milky white hyaline spots arranged in transverse bands, one including the first cross nervures, and a broader irregular one across the antepical cells; the sutural margins darker, with three pairs of equidistant round spots interspaced by the white tips of the claval nervures; the reflexed nervures along the costa broadened and darker brown.

Genitalia: female segment but little longer than the preceding, posterior margin truncate next to lateral angles, the middle half obtusely angularly produced, the apex of which is again produced into a short strap-shaped tooth, not as wide as the ovipositor, its width and length about equal.

Described from a single female from Prof. Cockerell, taken in the Sierra Madre Mts., Mexico, by C. H. T. Townsend.

Eutettix palliolata, n. sp.—Superficially resembling *Thamnotettix areola*, but much broader. Pale lemon yellow, with the pronotum,

scutellum and a narrow sutural stripe extending to the apex of the elytra of a rich testaceous brown. Length, ♀ 6 mm., ♂ 5 mm.; width, 2 mm.

Vertex longer and flatter than is typical for the genus, over half as long as its basal width, two-thirds the length of the pronotum, half longer on middle than against eye; front broad, nearly flat above, meeting the vertex in an acute angle, the margin narrow; pronotum very broad and almost parallel margined. Elytra rather broad, broadly rounding at the apex; venation obscure, somewhat irregular, a number of veinlets to the costa.

Colour: vertex pale lemon yellow, sometimes slightly greenish and sometimes washed with brown; pronotum and scutellum cinereous, washed with brown or pale brown, with traces of cinereous lines; elytra creamy yellow, the scutellar and sutural margins back to the apex narrowly striped with testaceous brown. These stripes are often narrowly margined with white anteriorly, including a narrow lateral margin of pronotum, and contain light spots as follows: a dot at the scutellar angle, a half circle in the margin before the middle of the clavus, a dark-margined spot in an enlargement of the stripe towards the apex of clavus, and a dot or margined spot in each of the first three apical cells. The brown stripes are very narrow at the apex of clavus and then enlarge as the elytra overlap. Face and all below pale creamy yellow.

Genitalia: female segment twice the length of the preceding, truncate posteriorly with the median fourth produced into a blunt tooth half as long as its basal width and slightly notched at the apex; male valve short, obtusely rounding, plates together spoon-shaped, their apices bluntly rounding and slightly upturned.

Described from eight specimens from the Nat. Museum collection labeled "Tex."

This is a strikingly distinct species, and while not a typical *Eutettix* in the shape of the head, it seems best to place it here for the present at least.

Scaphoideus scrupulosus, n. sp.—Similar to *blandus* and *jucundus* in form. The elytra more flaring and with the general appearance of an *Eutettix*, except for the sharp angled vertex. Pale, with a brown band on base of elytra, another on tip, and a triangular saddle on the disc. Length, 5 mm.; width, 1.25 mm.

Vertex flat, acutely angular, its length and width about equal, a little longer than pronotum, twice longer on middle than against eye; face as

in *jucundus*. Elytra moderately long, the venation obscure, and somewhat reticulate in the brown areas, resembling that of *blandus*; costal margin with a large number of nervures as in that species, but in this case they are less regular and slightly oblique.

Colour: vertex pale creamy, sometimes entirely washed with orange fulvous. In clearly marked specimens with a dash each side the apex, a faint line next the margin, and an irregular crescent on the anterior disc. Pronotum milky, with a submarginal row of obscurely infusate spots anteriorly, and often a few irregular irrorations on the disc; elytra milky subhyaline, with a rather narrow basal band of pale brown, a triangular saddle occupying the posterior half of clavus, and extending out a little on to the corium, of a testaceous brown, often iridescent; the apex of the elytra, including all of the three inner apical cells, of a deep smoky or fuscous. The anterior white band is strictly transverse and parallel margined, and is very definite; only one or two of the principal veins show the brown markings across it. Back of this, however, there is more or less of brown reticulation, often enough to connect the dorsal saddle with the fuscous tip; costal veinlets fuscous; face lemon yellow, anterior and middle femora, except the apices, deep brown.

Genitalia: female segment nearly three times the length of the preceding, the lateral angles broadly rounding to the posterior margin, margin roundly excavate one-third the distance to the base; from this excavation a long strap-like tooth extends nearly half its length beyond the two rounding lobes of the segment. Male valve obtusely triangular, nearly as long as the parallel margined, ultimate segment; plates long triangular, two and one-half times the length of the valve, their apices slightly produced, and their margins clothed with long hairs.

Described from four females and a male from Los Angeles, Calif. Coquillett collector. Type—Cat. No. (?), U. S. N. M.

This is a strikingly distinct form in this genus, and in several respects suggests the *modesta* group of *Eutettix*.

Thamnotettix collaris, n. sp.—General appearance of *clitellaria*, the saddle longer and narrower, slightly larger and longer than that species, with a much longer and distinctly angled vertex. Length, ♀, 6 mm.; width, 1.75 mm.

Vertex bluntly conical, nearly twice as long on middle as against eye, half as long as its basal width; together with the eyes distinctly narrower

than the pronotum ; front narrow, the margins straight, elytra long and closely folded behind, venation indistinct.

Colour : vertex and face creamy yellow, a pair of approximate spots on the apex only partly visible from above, and a narrow basal line on the vertex black. Pronotum behind the eyes ivory white or slightly yellowish-white ; that part included between the eyes deep black, scutellum black, elytra black, an elongate saddle extending from the apex of scutellum to the apex of clavus, a yellow stripe along costal margin narrow at the base, gradually widening until it occupies half the corium, then abruptly terminating just before the apical cells ; face and all below yellow, the antennal sockets black.

Genitalia : female segment rather long, lateral angles slightly rounding, posterior margin triangularly emarginate, with a median strap-shaped tooth as in *clitellaria*, but shorter.

Described from a single specimen from New York City (H. C. Park).

Thamnotettix mendica, n. sp.—Form and general appearance of *belli*. Larger, and with a longer and more distinctly pointed vertex, with a pair of rather large approximate black spots at the apex. Length, ♀ 6 mm., ♂ 5 mm. ; width, 1.75 mm.

Vertex a little over half broader than long, two-thirds longer on middle than against eye, apex slightly conically pointed ; front narrow, the margins straight, sloping directly to the clypeus ; pronotum over half longer than vertex. Elytra long, inclined to be flaring, venation distinct, similar to that of *belli* and *geminata*.

Colour : vertex yellow, a pair of large triangular approximate black spots on the rounding margin of vertex and front ; face pale lemon yellow, the sutures fuscous, a few brown arcs on front not extending up to the black spots. Pronotum white or greenish-white back of the eyes, anterior margin between the eyes brown. Elytra brownish subhyaline, with a coppery reflection, the nervures greenish-white, the costal margin before the apical cells broadly subhyaline white.

Genitalia : female segment half longer than the penultimate, the lateral angles rounding, posterior margin triangularly excavated one-third the depth of the segment. From the bottom of this excavation arises a rather broad strap-shaped tooth, which exceeds the lateral angles ; male valve rounding, nearly semicircular, almost as long as the ultimate segment ; plates three times the length of the valve, convexly rounding at the base, then concavely narrowing to the acute apices.

Described from five specimens from Fort Collins, Colo., collected by Mr. Van Duzee and the author, and two males from the National Museum, one from Santa Clara Co., the other from Los Angeles Co., Calif., both collected by Coquillett.

The longer and more pointed vertex will at once separate this from any of the numerous varieties of *belli*, *montana* and *geminata*.

Thamnotettix bullata, n.sp.—Somewhat resembling *chiragrica*, smaller and with a narrower head, irregularly pale and fuscous, a pair of large black spots against the eyes in front; elytra with the nervures broadly light. Length, 5 mm.; width, 1.6 mm.

Vertex two and one-half times wider than long, half the length of the pronotum, but little longer on middle than against eyes, roundly confused with the inflated front, which is broadest across the antennal sockets and abruptly narrows to the clypeus. Elytra considerably longer than abdomen, almost parallel margined, apex obtusely rounding, appendix narrow; venation distinct, the nervures broad, the central antepical cell extending beyond the other two, and slightly constricted in the middle half.

Colour: vertex pale orange, four dashes on the apex of vertex and front, anterior pair the larger, and a pair of large round spots occupying the entire space between the ocelli and the eyes, black. Pronotum cinereous or milky, more or less irregularly blotched with fuscous; scutellum pale yellow, with two large triangular spots within the basal angles. Elytra sprinkled with brownish fuscous, the nervures broadly white, emphasized on some of the cross nervures; face pale yellow, a few arcs on front brown; antennal sockets and narrow sutural line black; legs and below pale yellow, the ovipositor black.

Genitalia: female segment about half longer than the penultimate, the posterior margin slightly emarginate on either side of a broad median lobe that about equals the slightly acute lateral angles.

Described from three females from Los Angeles Co., Calif.; Coquillett collector. Received from the U. S. Nat. Museum.

This is another of the broad-headed species of *Thamnotettix*, which like *atridorsum* and *chiragrica* are not typical of the genus, and at the same time do not seem to be well placed in *Athysanus*.

Thamnotettix languida, n. sp.—Form of *Kennicotti* and *Coquilletti* nearly, but with a longer vertex and broader form. Darker than *Kennicotti*, with a pair of black spots just over the margin of the vertex and

another pair on the base, a submarginal row on pronotum and a basal row on scutellum. Length, ♀ 6 mm., ♂ 5 mm.; width, almost 2 mm.

Vertex one-half wider than long, half the length of the pronotum, the margins nearly parallel, the apex very slightly conically produced; face but slightly inclined, forming nearly a right angle with the flat, slightly sloping vertex; front broad below, abruptly narrowing to the clypeus; elytra rather broad, compressed behind, giving a wedge-shaped appearance to the insect; venation obscure, similar to that of *Kennicotti*.

Colour: vertex yellow, sometimes washed irregularly with brown, a pair of dashes on base of front visible from above, and a pair of round spots at base black. Pronotum varying from pale or milky to olive fuscous on the disc, the anterior fourth pale yellow, with an irregular band of black spots. Scutellum yellow, with a pair of round dots between a pair of larger triangles of black on the base. Elytra brown or brownish fuscous on the disc, shading out to subhyaline towards the margins posteriorly, the nervures lighter, the claval nervures milky, with the outer part becoming broadly so towards the apex; face pale yellow, a few brownish arcs on the upper part of front below the black dashes, and sometimes a line on clypeus.

Genitalia: female segment nearly twice as long as the preceding, but somewhat narrower, whole segment in the form of a parabolic curve, a second membrane appearing from under the lateral margins and extending back two-thirds the length of the segment; male valve very obtusely triangular, as wide but not over half as long as the apical segment; plates large, broader than the valve at base, and over four times as long, regularly narrowing from just beyond the base to the bluntly rounding apices; margins thick and clothed with weak hairs.

Described from eleven specimens from Los Angeles Co., Calif.; Coquillett collector. Received from the U. S. Nat. Museum.

This species seems to combine in part at least the characters of two different groups in *Thamnotettix*, for while in many ways it resembles *Kennicotti*, in other characters it is allied to some of the green species.

Errhomenellus irroratus, n. sp.—Smaller than *maculatus*, which it much resembles. Stouter bodied, and with a fuller front and more rounding head. Dark brown, irregularly dotted with pale yellow. Length, ♀, 6 mm.; width, 2 mm.

Vertex slightly less than a right angle, the apex blunt, almost twice broader than long, over twice longer on middle than against the small eyes; disc slightly convex, separated from the convex front by a sharp, slightly-curved carina; ocelli a little over their own width back of the carina, and about midway between apex and eye. Front broad, convex in both diameters, clypeus long, its depressed semicircular apex extending beyond the genæ. Pronotum transverse, about equalling length of the vertex, slightly emarginate on the median half posteriorly. Elytra brachypterous, but little longer than the pronotum, truncate or slightly rounding behind, coriaceous obscuring the venation.

Colour: dark reddish brown, vertex irregularly maculate with numerous small, round, yellow spots; pronotum and scutellum with numerous irregular yellow spots. Sometimes a pair of irregular yellow stripes ending on the outer angles of the scutellum. Elytra very sparsely maculate, an irregular blotch on the apical margins just within the costa; abdomen with numerous small spots and a pair of irregular longitudinal stripes yellow; face almost piceous with numerous fine yellow dots.

Genitalia: female segment large, nearly twice longer than penultimate, the posterior margin truncate within the triangularly produced lateral angles, a narrow median incision, back of which the segment is distinctly carinate.

Described from two females from Siskiyou Co., Calif.; collected by Koebele. Received from the U. S. Nat. Museum.

PAGARONIA, n. gen.

Allied to *Errhomenellus* and *Tettigonia*, but with a narrower head than in either. Resembling *Ciccus* in shape of head and pronotum. Head distinctly narrower than pronotum, the eyes small, vertex conical, nearly as long as the pronotum; the front reflexed over the margin as in *Tettigonia*; ocelli small, on the vertex just back of the suture that marks off the reflexed front, and one-third the distance from the eye to the apex. Pronotum short, emarginate behind, angularly inserted between the eyes, the lateral margin carinate, broadening posteriorly in a curve continuous with that of the anterior margin. Elytra longer than the abdomen, venation simple, usually but one anteapical cell—the outer. Face long and narrow, clypeus extending beyond the margin of the genæ; anterior tibiæ simple.

Pagaronia 13-punctata, n. sp.—Green, with thirteen small black spots on head and pronotum, and pale red lines on the elytra. Length, 8–9 mm.; width, 2.25 mm.

Vertex acutely conical, one-fifth wider than long, five-sixths the length of the pronotum, disc flat, sloping slightly toward ocelli, slightly carinate behind, the carina angled near the eye on either side and extending back behind it; pronotum broadest across lateral angles, lateral margins as long as the eye, posterior margin rounding from lateral angles to the scutellum, then emarginate. Elytra longer than the body and rather broad; venation simple, the apical cells twice longer than broad; front much inflated transversely, but slightly narrowing to clypeus.

Colour: pale green, vertex with seven black spots as follows: a pair on the basal suture, a pair just outside and behind the ocelli, a spot on either side the apex and one just before the middle of the disc. Face green, a black spot just under the conical apex of vertex and a pair of smaller ones, often obscure, on the suture just below the ocelli. Pronotum green with three black spots in a row across the disc, the outer pair on a line behind the eyes, the median one behind the middle of the pronotum. Elytra greenish subhyaline, sometimes with pale reddish lines between the nervures.

Genitalia: female segment as long as the penultimate, the posterior margin very slightly produced, elevated in the middle, almost carinate, often giving the appearance of a slight notch; male valve usually entirely concealed, plates long and finger-like, three times as long as their combined basal width, over twice the length of the apical segment, narrowing toward the apex and sparsely clothed with weak spines.

Described from nine specimens from Los Angeles Co., Calif. (collected by Koebele and Coquillett); three from Pasadena, Calif. (H. C. Fall), and three from Marin Co., Calif. (C. Fuchs).

Pagaronia 13-punctata, var. *triunata*, n. var.—Size and structure of the species: Colour dirty straw yellow, sometimes washed with reddish; vertex with all seven spots of the preceding species enlarged and somewhat irregular, the posterior pair on the disc near the margin instead of being in the suture, an elongate dash on the reflexed portion of front on either side, about midway between the apical spots and the pair

against the ocelli. Front with twelve pairs of distinct fuscous arcs which emit a broad definitely-margined stripe of yellow bearing a black spot above. Pronotum with a submarginal row of irregular spots, heaviest near the margin. Elytra sometimes of a unicolorous dirty straw, sometimes pale yellow, with the spaces between the nervures scarlet, except along the costa.

Described from four specimens from Santa Clara Co., Calif. (Coquillett), and three from Santa Cruz Co., Calif. (Koebele).

This is a very puzzling form and seems in several characters to connect the *Tettigonidæ* with the *Jassidæ* through some of the lower forms in that group.

Paropulopa interrupta, n. sp.—Form of *M. scanicus* nearly, slightly smaller, vertex flat and not extending behind the eyes; colour very variable, usually pale straw with interrupted fuscous markings on pronotum and elytral nervures. Length, 2.5–3 mm.; width, 1.25 mm.

Vertex flat or slightly depressed on the disc, deeply, coarsely pitted, a little over twice as long on middle as next eye, two and one-half to three times wider than long, the anterior margin rounding or bluntly angulate, face retreating, forming a very acute angle with vertex. Front flat, slightly depressed above, broadest across the antennal pits, from which ridges extend nearly to the apex, forming shallow pits between these and the vertex margin in which the ocelli are located. Whole face deeply pitted, ocelli slightly nearer each other than the eyes, clypeus rounding at the apex and extending some distance beyond the genæ. Pronotum with the entire posterior margin nearly straight, anterior and lateral margins in a broad curve. Elytra coriaceous, apex bluntly angular, nervures raised, distinct, cells somewhat irregular, often a few extra nervures along costa, a cross nervure between the sectors before the anteapical cells and often two behind this opposite the anteapical cells.

Colour: very variable, often pale straw, with more or less of fuscous markings on pronotum and with the nervures and margins of elytra interruptedly fuscous, sometimes these marks are arranged in the form of oblique bands. Sometimes the whole insect is of a rather uniform brownish fuscous and sometimes of a tawny reddish shade, the punctures on pronotum are usually dark marked.

Genitalia: female segment shorter than the penultimate, the posterior margin triangulary emarginate from the lateral angles clear to

the base in the middle, so that all that is visible of this segment is a triangular strip on either side from under the margin of which another more broadly triangular strip is exposed; male, ultimate segment very large, valve transverse, one-half as wide and one-third as long, the posterior margin truncate, plates as wide as the valve and nearly four times as long, apparently united for more than half their length, the apices broad and individually rounding.

Described from nine specimens from Los Angeles Co., Calif. (Coquillett and Koebele), and four specimens from Pasadena, Calif. (H. C. Fall).

This, and the following species, introduce a new subfamily into the American fauna. It remains only to discover a *Ledra* and a *Ulopa* and we shall have all the European groups represented.

Paropulopa Mexicana, n. sp.—Resembling *interrupta*, but larger. Front distinctly convex, elytra long and narrow. Pale testaceous brown with fuscous pitting. Length, 3.5 mm.; width, 1.25 mm.

Vertex slightly longer and more angular than in the preceding form, fuller and less sharply angled with the vertex. Front full and distinctly convex, a slight depression under the apex of vertex, the carinae under the ocelli very faint. Pronotum shorter and broader than in *interrupta*, the posterior margin straight. Elytra long, regularly tapering from both margins, coriaceous, the claval suture often indistinct; the venation similar to *interrupta*, but weak and irregular posteriorly, no cross nervure between the sectors before the anteapical cells.

Colour: testaceous brown, with more or less of fuscous on vertex and pronotum, chiefly in the coarse pits.

Genitalia: female segment two and one-half times the length of the penultimate, the lateral margins parallel to the middle, then suddenly narrowed one-fourth the width of the segment and again parallel; posterior margin truncate or roundly emarginate, with an open median notch.

Described from two females from the Sierra Madre Mts., Chihuahua, Mex. Alt. about 7,500 ft. Collected by C. H. T. Townsend, and sent by T. D. A. Cockerell.