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NEW SPECIES OF WEST AMERICAN COLEOPTERA

BY EDWIN C. VAN DYKE California Academy of Sciences

This paper contains the descriptions of a number of new species of Coleoptera which have been acquired by the California Academy of Sciences, during the last few years, together with comments on other species.

FAMILY CLERIDAE

Trichodes basalis Van Dyke, new species

Rather small and narrow; head, prothorax, base of elytra and legs clothed with long, stiff hairs as usual in the genus, the posterrior portion of elytra with denser, shorter, semi-erect hairs, and the abdomen sparsely clothed with more or less recumbent pile; the greater part of head, prothorax and scutellum a metallic green, the elytra yellow at base, with a moderately narrow, transverse yellow bar at center, and oblique yellow stripes, diverging backwards and outwards and not quite meeting at suture, half way between median transverse band and apex, elsewhere a deep blue, the bluish patches in front and behind the median yellow bar faintly rufous at their centers and the apical patch somewhat rufous toward the apex, the front of head, antennae, legs and underside of after-body rufo-castaneous. Head coarsely, not closely punctured, clypeus smooth and shining, an inverted V-like impression between eyes, eyes of moderate size and quite prominent, the antennae with the usual triangular club and not quite twice as long as broad. Prothorax but little longer than broad, broadest in front, gradually narrower to posterior third, then constricted before base; the disk shining, rather coarsely, not cribrately punctured and with a small, smooth area in front of the scutellum. Elytra two-fifths as broad as long, with sides straight and parallel in front, feebly arcuate and narrowed toward the truncate apices; the disk rather coarsely, closely punctured, the punctures anteriorly arranged in more or less approximate rows, more irregular toward apex. Length, 8 mm.; breadth, 2 mm.

Male with antepenultimate ventral segment deeply emarginate posteriorly, the penultimate feebly emarginate and the apical somewhat arcuate at apex.

Holotype male (No. 5327, Mus. C. A. S. Ent.), collected in

IMPERIAL COUNTY, CALIFORNIA, in 1911, by J. C. Bridwell and by him kindly presented to me.

This very distinctively marked species, both in sculpturing and coloration, shows that it is more closely related to horni Woll. and Chap. than to any of the ornatus group. From horni, it is not only definitely separated by its color pattern but by being much less coarsely punctured above, with more prominent though smaller eyes, shorter antennal club and smaller size.

FAMILY ELATERIDAE SUBFAMILY PLASTOCERINAE

Euthysanius wagneri Van Dyke, new species

Elongate, subparallel, rufotestaceous, somewhat shining, head, pronotum and ventral surface of entire thorax rather densely clothed with long, silky, fulvous pile, elytra rather densely clothed with shorter, semi-erect pile which, however, does not conceal the sculpturing, and the ventral segments with sparser, finer and more depressed pile. Head triangularly impressed in front, rather coarsely, closely punctured, the clypeal margin more or less lobed and slightly truncate at middle; eyes prominent, hemispherical; antennae reaching hind angles of prothorax, outer segments pectinate, the appendages long, about four times the length of the segments and terminal appendage fully as long as preceding one. Prothorax subcampanulate, length three-fourths breadth at middle and less than three-fifths width between apices of hind angles, front margin very feebly arcuate, sides slightly arcuate in front and oblique and divergent posteriorly to the long, sharp and widely everted hind angles which are carinate within; disk moderately convex, finely, not closely punctured, median line distinctly impressed. Scutellum elongate, depressed at middle and somewhat transverse behind. Elytra slightly less than three times as long as broad, sides gradually narrowing posteriorly; the disk convex, the striae well impressed and rather coarsely, closely punctured, the intervals convex and finely, irregularly punctured. Beneath, the propleurae rather coarsely, closely, punctured, prosternum finely rather closely punctured and sulcate between the coxae, ventral segments finely, rather densely punctured. Hind tibiae somewhat sinuate. Length, 22 mm.; breadth, 5.5 mm.

Holotype male (No. 5328, Mus. C. A. S. Ent.) and two male paratypes, collected at light, at Morro, San Luis Obispo County, California, July 4, 1931, by Mr. Roy L. Wagner, and kindly sent to me some years ago.

This species at first sight looks like a light colored lautus, seeing that it is of similar size and proportions. It differs from

this by having a finer, less dense pronotal punctuation, and from this as well as other species by having the basal angles of prothorax widely separated, divergent and acute, the clypeus more lobed in front, the forebody clothed with long, silky pile, and the terminal appendage of the antennae as long as the preceding appendages.

Aplastus piceus Van Dyke, new species

Elongate, stout, piceous, sparsely clothed above and beneath with short, closely appressed, gray pile. Head with triangular impression in front, coarsely, densely punctured; eyes prominent; antennae long, seventh segment reaching hind angles of prothorax, second and third segments short, the third but little longer than second, together about two-thirds length of fourth segment, segments 4-10 gradually wider from base to apex, the outer angle extended as a cylindrical appendage which is fully one-half the length of the segment, the eleventh segment long and cylindrical, slightly longer than the tenth and with a short appendage continuous with itself. Prothorax as long as broad, not including hind angles, apex arcuate, sides almost straight and slightly divergent to hind angles which are triangular, acute, carinated and generally continued straight backward and outward in line with the sides though frequently slightly everted, lateral margin generally well defined and complete though often obscure; disk rather coarsely, closely punctured, the median longitudinal line as a rule well impressed. Elytra three times as long as broad, sides almost straight, gradually narrowing backwards, and arcuate to apex; the disk with striae all distinctly impressed, the intervals feebly convex, the general surface finely punctured and rugous. Beneath, prothorax coarsely, closely punctured, the prosternum carinate in front and sulcate between the coxae, the ventral segments rather finely, discretely punctured. Length, 15 mm.; breadth, 4 mm.

Holotype male (No. 5329, Mus. C. A. S. Ent.), and numerous designated paratypes from a series of forty-nine specimens, collected by myself, in Morongo Valley, Riverside County, California, from May 23-26, 1941.

This species of the semi-arid hills to the east of the San Bernardino Range, is very similar in size and general appearance to speratus Lec. which is to be found in the more humid areas to the west of the mountains. The latter species is in general more rufous and has the outer segments of the antennae more definitely triangular and with the outer angle but little produced while piceus has the segments more narrowed basally and the outer angles extended in the form of an appendage. The

latter species also has the pronotum coarsely and closely punctured.

Larger series of Aplastus speratus Lec. than I formerly had, show that the lateral marginal line of the prothorax is well indicated in the larger, better developed specimens, and that it is only in the atypical or more poorly formed specimens that it is reduced. This would thus change the placement in my key (Proc. Calif. Acad. Sci., XX, 1932, pp. 459-460). Aplastus piceus would have to be placed near it.

SUBFAMILY ELATERINAE

ADELOCERA MEXICANA CANDEZE

In 1932, Dr. H. C. Fall described specimens of this species from Arizona as A. nobilis. This is an absolute synonym. While in Europe in the same year, I carefully examined the Candeze type in Brussels, also the specimen in the British Museum from which the illustration for the Biologio-Centrali Americana, was made. They were both from Mexico and both the same species and in agreement with the specimens from Arizona as well as Mexico that I have studied. If the specimen from Florida which Fall and Horn considered the true mexicana is different, then it is undescribed.

CONODERES BICARINATUS VAN DYKE

The specific name of this species, bicarinatus, is preoccupied by a species from Turkestan, Conoderes (Heteroderes) bicarinatus Reitter. I, therefore, now substitute the name duplicatus Van Dyke, new name, for my species.

CONODERUS (HETERODERES) AMPLICOLLIS (GYLLENHAL)

The specimens of *Conoderes* from Alabama which I formerly determined as the above, are really *laurentii* Guer. (attenuatus Cand.), according to specimens in the British Museum. In the Brussels Museum where much of the Candeze collection still is, there is considerable confusion. Specimens of the above are labelled amplicollis as well as *laurentii*.

Limonius cribriceps Van Dyke, new species

Rather short and robust, black, elytra and legs piceous, and clothed with a short and sparse yet conspicuous gray pile. Head flattened in front, coarsely, cribrately punctured, the clypeal front margin transverse and feebly reflexed; eyes of moderate size; an-

tennae rather short, extending but slightly beyond hind angles of prothorax, second and third antennal segments each about twice as long as broad, subcylindrical, together somewhat longer than fourth segment, 4-10 moderately serrate, gradually narrower, the terminal segment fusiform. Prothorax about as long as broad, apex feebly emarginate, base biemarginate, sides sinuate in front of hind angles, arcuate and gradually narrowed to apex, hind angles robust, projecting slightly backwards, truncate at apices and finely carinate; disk with median longitudinal line well impressed posteriorly, coarsely, deeply, rather closely punctured medially, approximately and cribrately at sides. Elytra fully 1 mm. more than twice as long as broad, sides subparallel in front, feebly arcuate posteriorly and gradually narrowed to apex; disk with striae well impressed and rather coarsely punctured, the intervals flattened, irregularly punctured and very rugose. Beneath coarsely and deeply punctured in front and less coarsely and densely on anterior ventral segments, the last ventral very densely punctured. Length, 10 mm.; breadth, 2.5 mm.

Holotype (No. 5230, Mus. C. A. S. Ent.), a unique, probably a female, collected by myself on the Greenhorn Mountains of Tulare County, California, May 7, 1931.

In my synoptic table for *Limonius*, this species would come just before *confusus* Lec. and *plebejus* Say and following *kuschei* Van Dyke. In size and general appearance, it suggests *clypeatus* Mots. most but has a transverse clypeal margin. It is most notable because of its very coarse punctuation.

Limonius arizonicus Van Dyke, new species

Narrow, elongate, castaneous, antennae, legs, underside and epipleurae lighter, and sparsely clothed with short fulvous pile, longer on metasternum. Head rather coarsely, densely punctured, depressed at center in front, clypeus with sharply defined transverse margin; antennae long, the ninth segment reaching apex of hind angles of prothorax, second and third segments short though each longer than broad and together slightly longer than fourth, 4-10 moderately serrate, gradually narrowed outwardly, eleventh elongate-elliptical; eyes convex. Prothorax as long as broad at hind angles, sides gradually narrowed and feebly arcuate forwards, apex transverse, base bisinuate, hind angles rather short, slightly divergent, truncate at apices and with a fine carina which diverges forwards to a slight degree from the lateral margin; disk without definitely impressed median longitudinal impression, coarsely, approximately punctured at sides, more finely and sparsely punctured at center. Elytra about 1 mm. more than twice as long as broad and less than three times as long as prothorax, sides almost parallel in front, gradually arcuate and narrowed posteriorly;

disk feebly convex with striae finely impressed and finely, closely punctured, intervals flattened or feebly convex laterally and finely, irregularly punctured and rugose. Beneath, moderately punctured in front, the propleurae more coarsely and densely, the ventral segments moderately punctured, the apical more densely so; the prosternal sutures well separated in front and the prosternal lobe well developed. Length, 10 mm.; breadth, 2.75 mm.

Holotype (No. 5331, Mus. C. A. S. Ent.) and seven paratypes, all apparently males, collected in Bearfoot Park, alt. 8-9000 feet, Chiricahua Mountains, Arizona, the type, July 15, 1937, the others July 9, 29, or 30, by J. A. Kusche.

This species though a true *Limonius*, in size and general appearance, looks more like an *Athous* such as *discrepans* Reitt. (*discors* Fall). In my synoptic table, it would run close to *confusus* Lec., to which it bears little resemblance. It is probably somewhat related to *rectangularis* Fall.

LIMONIUS DISCOIDEUS LEC.

I am still quite positive that discoideus is but the female of canus, occurring most commonly in the more northern areas of distribution. I have a pair mounted on the same pin, taken along Putah Creek, Solano County, California. The male is a typical male canus and the female a true discoideus. The usual female canus of the more southern areas of distribution is generally darker than typical discoideus. The latter is also not restricted to the north and intermediate color phases are not uncommon. I have discoideus from Trinity County, Tehama County, Humboldt County, Santa Cruz County, Monterey County, Calaveras County and Ventura County, California. Dr. Fall speaks of specimens of canus found on the sand dunes of San Francisco and Carmel and wondered whether it ranges farther north along the coast. I have taken it at numerous places, on the sand dunes along the coast from Redondo, California, to the State of Washington, as well as along numerous sandy washes of inland streams from southern California to Washington. Dr. Fall was not very familiar with field conditions in the more northern parts of the Pacific Coast. He also speaks of the possibility of discoideus being another species because certain males found with them had longer antennae than certain males found farther south. From my very long series, I find that the length of the antennae varies in the males, some from the south having long as well as short antennae while others from the north vary to

the same degree. Limonius canus Lec. is a species of wide distribution along the Pacific Coast, quite variable in many regards yet having a more or less definite biological habitat, that is the sandy wastes, whether of the seacoast sand dunes or the sandy margins of the various inland streams.

LIMONIUS INFUSCATUS MOTSCHULSKY

This species is, perhaps, even more widely distributed on the Pacific Coast than canus and more variable. Dr. Fall questioned my figures. My smallest infuscatus are 8 mm. long and I have many close to that figure. In fact the greater number of those to be found in middle California, as along the Russian River, presumably the type locality for Motschulsky's species (8.4 mm. long vid. Fall) are moderately small specimens. The average of the great majority is 10 or 11 mm. My excess figure was 14 mm. for pilosulus Caud. which I consider but a subspecies. I have in fact one pilosulus 16 mm. long while my smallest pilosulus is but 11 mm. long. Of vernalis Fall which I still consider but the lighter, more southern phase, I have twenty specimens before me, the smallest 8 mm., the largest 12 mm., average 10 mm. In my high school days, I collected them in quantities along the Los Angeles River channel. This is the phase which is common and widespread throughout the lowlands of southern California. In the mountains as at Keen Camp, Riverside County, the darker, more typical infuscatus is to be found. The average of specimens to be found in northern California, Oregon and Washington, is slightly greater than the Russian River specimens. As to pilosulus Cand. (pilosus Lec.) which is rare in collections, I will state that I have ten specimens before me, one of which I have carefully compared with the Le Conte type. It is 14 mm. long, larger than the type which is 10.5 mm., but it agrees with it in every regard except size. I also have two others of similar size and appearance. Five specimens are either 11 or 12 mm. long. Four of these are females like the largest specimens but one is a male. This last, from Los Angeles, has the antennae extending back to the hind prothoracic angles and the fourth and fifth segments are broadly triangular, not transverse as in the largest female and several of the smaller ones. All of the specimens have the same color and facies and I think are undoubtedly the same thing. Only one of these is from southern California, the male. The type was supposedly from Yuma. All the others are from northern California: Sonoma County, Humboldt County, Santa Cruz County, Contra Costa County and Oroville. My largest specimen, 16 mm. long, is perhaps a different species for it is almost black, dull without metallic lustre, very hairy, and with the pronotum coarsely, densely punctured.

LUDIUS TRUCULENTUS (CANDEZE)

This species, the type of which I examined in the Brussels Museum, is not what I judged as such from the description. Either my shastensis or blaisdelli, probably the latter, is more in agreement with the type of truculentus. Unfortunately I had no specimens of either shastensis or blaisdelli with me for purposes of comparison when abroad and comparison would be absolutely necessary to be certain of the determination. What I took to be truculentus, is without a name, so will be described.

Ludius sierrae Van Dyke, new species

Elongate, robust, moderately convex, rufo-castaneous, generally with a broad, black, longitudinal stripe down the center of the pronotum, though this is often vague and sometimes absent, the base of head also sometimes black and the prosternum and underside of entire after body more or less piceous, and both upper and lower surfaces clothed with a sparse, short, closely appressed though quite evident pubescence. Head feebly convex, sometimes with two shallow impressions between the eyes and densely closely punctured, antenna piceous, extending several segments beyond hind angles of prothorax in males and one or two in female, second segment short, slightly longer than broad, third almost twice as long and but little shorter than fourth, 5-10 gradually shorter and narrower and 4-10 all feebly serrate. Prothorax as broad as long, not counting hind angles, sides arcuate from apex to base of hind angles, hind angles prominent, acute, divergent, with sharply defined carinae and fully 1.5 mm. long; disk broadly convex, slightly deplanate laterally, with median longitudinal impression generally vague, and finely, rather densely punctured, especially at sides, and lateral margin very narrow. Elytra over twice as long as broad and less than three times as long as prothorax, sides almost straight and parallel at basal third, thence feebly arcuate and gradually narrowed toward apex; the disk with striae finely but well impressed and finely somewhat obscurely punctured, the intervals broad, feebly convex and finely punctured and rugose. Beneath finely closely punctured, denser on prothorax. Length, 12-20 mm.; breadth, 4-6 mm.

Holotype male, allotype female (Nos. 5332 and 5333, Mus. C. A. S. Ent.) and four paratypes, the first from Meadow Val-

LEY, PLUMAS COUNTY, CALIFORNIA, 3500-4000 feet alt., June 6, 1924; the second from Fallen Leaf Lake, near Lake Tahoe, California, July 12, 1915; and the others from Quincy, California, July, 1922; Yosemite Valley, California, June 3, 1921; and El Dorado County, California; all collected by myself. There is also an additional specimen from Glen Alpine, near Lake Tahoe, California, collected in July, in the Fenyes collection of the Academy.

This species which has long confused me, looks very much like some of the bicolored specimens of volitans Esch. from Alaska and the northern Cascade Mountains, but it is in general more robust, with a shorter and broader prothorax, less sagittate, smaller prothoracic hind angles, and above all with the third antennal segment not quite as long as fourth whereas it is always fully as long or longer in volitans. True volitans are to be found in the same general region as sierrae, the mid Sierra Nevada Mountains.

LUDIUS CRIBROSUS (LE CONTE) AND RELATIVES

In my paper of 1932, I was too hasty in placing cribrosus, maurus and colossus as phases of one species. They are, of course related, the two first very closely so and often difficult to separate. The male genitalia of these are so similar that they cannot be relied upon for purposes of diagnosis. The antennae of atypical smaller females, likewise, cannot be depended upon. The two species are also to be found in the same regions. Typical cribrosus have the pronotal punctures generally deep and well separated on the disk, the third segment of the antennae almost as long as fourth and quite triangular, and are as a rule more shining. Typical maurus Lec. are usually broader, flatter, have the pronotal punctures close together, more approximate, the third segment of the antennae more cylindrical, feebly triangular, and as a rule shorter though many have it practically as long as the fourth, and are duller in appearance. The male genitalia of colossus Lec. are different from either of the others, the lateral blades of the aedeagus narrower and knobbed apically; the antennae are more like those of maurus but have the outer segments more transverse and broader basally; the pronotal punctation much like that of cribrosus; and the elytra with striae very finely, often obscurely impressed and the intervals flat and rather densely punctured. It is the elytra in the smaller specimens which are no larger than many maurus, which have to be used to enable these to be definitely separated from maurus. At first only very large female specimens of colossus were known or at least recognized but more recently more specimens have been found, including many smaller specimens and both males and females, though the males are still quite rare. As stated previously, I find that this species is restricted to the southern Sierras.

LUDIUS NIGRICANS (FALL)

A restudy has convinced me that the above species is a good species not a subspecies of rotundicollis (Say) as I at first thought and stated. In general it is larger. I have, however, specimens that are no larger than average examples of rotundicollis and specimens of diversicolor Esch. which are fully as large as minor sized specimens of nigricans. The pronotal punctuation is variable and so unreliable as an index. In typical nigricans, it is moderately coarse and dense, in other specimens fine and less dense, approaching that of rotundicollis. The more reliable diagnostic characters are the somewhat flattened pronotum, rather broadly sinuate sides in front of the moderately robust hind angles which may be either slightly or conspicuously divergent, and the fairly wide side margin of the prothorax, especially posteriorly. In rotundicollis, the pronotum is more convex, with the sides narrowly and sharply sinuate just in front of the short, acute and divergent hind angles, and the side margin of the prothorax very fine and narrow throughout. I have a color phase of nigricans with broad red margins to the prothorax, from Olympia, Washington.

LUDIUS ROTUNDICOLLIS (SAY)

The typical phase of this according to Fall, and Say's original description which I neglected to consult at first, has a more or less rufous pronotum, I would call it a dark cherry red. I now have before me several specimens of this typical phase from the Fenyes collection, as well as all black specimens, one from the Pacific Coast, Olympia, Washington. The diversicolor of Eschscholtz is not the same as rotundicollis, therefore not a synonym as stated by Fall but a good subspecies as formerly stated by me. In fact, I very much doubt whether Dr. Fall had ever seen a true diversicolor. Outside of having a brilliant orange pronotum, it has the elytra a more pronounced, shining black and the fine, close punctuation of the elytral striae quite evident

whereas it is more or less obsolete in typical rotundicollis. This subspecies is generally to be found in the middle, coastal region of California and as far as I have found, breeds in the old rotting wood in the holes of injured live oak trees. There is also a color phase of this, characterized by having a longitudinal black area of variable size down the middle of the pronotum. This phase, so far, only has been found about Monterey Bay in California.

ELATER STURMII GERMAR

The type of the above-mentioned species is in the British Museum and is a true Megapenthes.

Melanotus longulus Le Conte

In my previously-mentioned paper, I sunk M. oregonus Lec. as a subspecies of the above. I was in error. M. oregonus Lec. is a good species with different male genitalia. The other forms which I included under longulus, belong as placed.

FAMILY MELASIDAE

Hylus (Hypocoelus) robustus Van Dyke, new species

Form robust, moderately elongate; piceous, antennae, legs, generally the abdomen and sometimes the entire underside rufous; sparsely clothed with fine, fulvous pile. Head convex, flattened in front, sulcate between the antennae, clypeus narrowed at base, transversely concave, the entire head coarsely, densely umbilicately punctured; antennae with the seventh segment reaching hind angles of prothorax, second segment small, transverse apically, segments three and four feebly triangular and twice as long as broad, the following cylindrical and slightly more than twice as long as broad, the terminal segment slightly longer than tenth and acute at apex. Prothorax barely wider than long, apex feebly lobed, sides arcuate from hind angles and gradually narrowed to apex, base broadly emarginate on either side and with a short transverse area between; disk convex, with median longitudinal line barely impressed near base, the surface coarsely umbilicately punctured. Elytra finely striate, the strial punctures more or less vague, the intervals flat and finely, irregularly and somewhat densely punctured and finely rugose. Beneath, prosternum rather coarsely, densely punctured. The abdomen more finely and less densely punctured. Hind coxal plates triangular, gradually dilated inwardly, the hind margin straight. Length, 8 mm.; breadth, 3 mm.

Male: terminal segment of antennae evidently but very little longer than tenth; female, terminal segment of antennae equal to tenth.

Holotype male, allotype female (Nos. 5334 and 5335, Mus. C. A. S. Ent.) and three paratypes; the holotype male from near

KAWEAH, TULARE COUNTY, CALIFORNIA, August 11, 1939; the allotype female, same locality, August 2, 1937; two paratypes, same locality, August 11, 1939 and August 3, 1937; all collected by F. T. Scott; the third paratype collected by A. T. McClay at Palloch Pines, California, May 6, 1937.

This species as indicated by its name is very robust. In the tables, it would run close to frontosus (Say), but differs by being larger and more robust with the head and pronotum very coarsely, cribrately and umbilicately punctured and the head much flattened in front. In one specimen, the one from Pollock Pines, there is a small, rudimentary, longitudinal crista on the front of head. The species is the fourth in the genus to be described from North America: frontosus (Say) from eastern Canada and adjacent areas of the United States; terminalis (Lec.) from the same localities and on the Pacific Coast from British Columbia, Washington and northern California; and californicus (Van Dyke) and robustus Van Dyke, both restricted to California; thus, showing that northwestern North America is the center of distribution for this continent.

ZUPHIUM AMERICANUM DEJ. IN OREGON

On April 29, 1942, a series of ten specimens of this tiny Carabid was taken as Spencer's Butte, 5 miles south of Eugene, in an open meadow at the altitude of 900 feet.

The beetles were found clinging to an overturned stone in somewhat Cucuid manner, but when disturbed by light they became very active and rapidly descended to the ground where some succeeded in hiding themselves under particles of soil and escaped collector's hand.

The state of Louisiana is cited in Leng's catalogue as the habitat of the species, but Dr. Hatch, who has kindly determined the beetles, has informed me that there is in his collection a specimen from Ann Harbor, Michigan. Apparently the distribution of the *Zuphium americanum* is quite extended although it is rarely found in collections.

Out of the total ten, two specimens are placed in the collection of Mr. and Mrs. Kenneth Fender of McMinnville, Oregon, four in Dr. Hatch's collection, and the remainder in my own.—Borys Malkin.

¹ Four examples from Kansas in the Field Museum of Natural History, Chicago, have been examined since the above was written.



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