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THE NORTH AMERICAN SPECIES OF *TRIGONURUS* MULS. ET REY (COLEOPTERA- STAPHYLINIDAE)

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The Staphylinid genus *Trigonurus* was established by Mulsant and Rey,¹ for the reception of *mellyi*, a peculiar flat species found in the Grand-Chartreuse of the Maritime Alps of Europe. Since that time, seven other species have been described. One of these, *asiaticus* Riche, was found in the Caucasus. The other six have been collected on the Pacific Coast of North America.

Of the American species, *subcostatus* Makl,² was described as from Sitka, Alaska and in the genus *Latrimaeum*. It was later removed from that genus and placed in *Trigonurus* and stands as such in the Leng Catalogue, though referred back to its original genus in the 1933 supplement to the Staphylinidae of the Coleopterorum Catalogus. I believe that this species is a true *Trigonurus* and quite close to *crotchii* Lec. if not identical. Its status, however, will have to remain in doubt until we are able to again collect in its type locality. Of the other species, two, *caelatus* and *crotchii*, were collected by Crotch and described by Le Conte³ in 1874; and the remainder, *edwardsi*, *leconteus* and *rugosus*, collected by Henry Edwards and described by Sharp⁴ in 1875. Fauvel⁵ in 1878 reviewed Sharp's work but added no new information. Keen⁶ in 1895 mentions another species, *nebrioides* Fauv., from the Queen

¹ Ann. Soc. Linn. Lyon X, 1847, p. 515.

² Bull. Mosc. 1852, p. 320.

³ Trans. Amer. Ent. Soc., v. 1874, p. 48.

⁴ Entom. Month. Mag., XI, 1875, pp. 205-206.

⁵ Bull. Soc. Linn. de Norman., 3rd ser., II, 1877-1878, pp. 185-188.

⁶ Can. Ent., 27, 1895, p. 172.

Charlotte Islands but this was never described as far as I can find and thus is without standing, a *nomen nudum*. The species, moreover, was no doubt *crotchii* for Keen in 1905⁷ lists this species when mentioning the insects collected on the mainland of British Columbia across the straits from the Queen Charlotte Islands.

Considerable confusion has existed in the minds of entomologists for some time with regard to the status of a number of these species. I have attempted to settle this, first by gathering as much information as I could in the field and second by studying the original types. I have examined the Le Conte types several times and recently had the opportunity to study the Sharp types in the British Museum. As a result of my work, I now consider that *leconteus* Sharp is an absolute synonym of *crotchii* Lec.; that *edwardsi* Sharp is a good species though superficially much like *caelatus* Lec.; and that *rugosus* Sharp is somewhat closely related to *caelatus* Lec., undoubtedly a derivative of the same stock, but for the present should be considered as distinct. In addition to the above I have one more species to add to the number of known species.

The species of *Trigonurus* in North America are as stated before, restricted to the Pacific Coast. They extend along the coast from Sitka, Alaska, to below Monterey, California, and inland range through the Cascade and Sierra Nevada Mountains. No species has been found in the Rocky Mountains or farther east. Their biology is but little known though all of the American species are found in the adult state beneath the bark of dead and decaying coniferous trees.

SYNOPTIC KEY TO TRIGONURUS

1. Prothorax distinctly, arcuately dilated at middle, elytra arcuately narrowed towards base **dilaticollis** n. sp.
Prothorax and elytra with sides almost straight and parallel . . . 2
2. Elytral striae well impressed, the striae punctures of but moderate size and strictly limited to the striae; prothorax about one fifth broader than long, the propleura smooth.
crotchii Lec.
Elytral striae shallowly impressed at most, the punctures large and more or less indenting the intervals; prothorax almost as long as broad, the propleura more or less coarsely punctured 3
3. Pronotum finely, shallowly punctured on disk, more coarsely in basal impressions; scutellum smooth or but finely and sparsely

⁷ Can. Ent., 37, 1905, p. 297.

punctured; elytra without striae but the punctures coarse and arranged in regular rows throughout. *edwardsi* Sharp
 Pronotum coarsely punctured or rugose on disk as well as in basal impressions; scutellum coarsely punctured; elytral punctures moderately coarse and with tendency to be less regularly arranged in rows, at least towards sides. 4

4. Pronotum coarsely but irregularly punctured, the median pronotal groove distinctly impressed and with boundaries generally more irregularly and sparsely punctured than rest of disk; the elytral striae and strial punctures in general quite regular. *caelatus* Lec.

Pronotum coarsely, closely, reticulately punctured or rugose throughout, the median groove vague; the elytral striae irregular or obliterated and strial punctures likewise quite irregularly arranged; general appearance duller than in preceding species. *rugosus* Sharp

Trigonurus dilaticollis n. sp.

Elongate, flattened, gradually narrowed from the middle towards both head and apex of abdomen, glabrous, subopaque, dark reddish brown with clypeus and appendages rufous. Head with front rather finely, not closely punctured, the clypeus more finely and sparsely so, the front convex, eyes and genae moderately prominent; antennae long, reaching well beyond hind angles of prothorax. Prothorax nearly a third broader than long, apex perceptibly emarginate, base barely arcuate, sides broadly and evenly arcuate from front angles to near base where sinuate to hind angles; disk slightly convex, broadly, shallowly, longitudinally grooved at middle, deplanate laterally, with lateral basal impressions broad, well impressed and extending forwards to middle, the general surface rather coarsely, closely and uniformly punctured, scutellum similarly punctured. Elytra less than twice as long as broad, a bit broader at humeri than prothorax, sides arcuate from base to humeri, thence almost straight and somewhat convergent to hind angles, the apex of each elytron slightly arcuate; disk flattened from suture to humeral interval which is bluntly carinate, thence abruptly declivous to lateral margin, a short blunt carina near outer apical angles and distinctly impressed within this, the striae moderately impressed and regular and with rather large, regularly placed shallow punctures, finer and more irregular on lateral declivity, the intervals sparsely, irregularly punctured and more or less rugulose. The apical abdominal segments above regularly but not closely punctured. Beneath coarsely, closely punctured in front on both sternum and propleura, more sparsely at middle, and more finely and sparsely on abdomen. Length 6 mm., breadth 1.75 mm.

Holotype male (No. 3850 Calif. Acad. Sci.), a unique collected by myself in Lagunitas Canyon, Marin Co., Calif., April 9, 1911, from beneath the bark of a dead redwood tree, *Sequoia sempervirens* Endl.

This species is not only larger, darker and duller than our other species but has an entirely different appearance because of the dilated prothorax and narrowing of the elytra towards the base.

Trigonurus crotchi Le Conte

Elongate, subparallel, flattened, shining, reddish brown in color. Head sparsely, irregularly punctured, eyes moderately prominent, antennae reaching several segments beyond hind angles of prothorax. Prothorax almost a third broader than long, apex slightly emarginate, base barely arcuate, sides evidently arcuate anteriorly, thence almost straight or barely arched to hind angles; disk flattened, a bit convex at center and finely longitudinally grooved at middle, the lateral basal impressions shallow but rather sharply defined, the general surface finely, regularly and not closely punctured. Scutellum smooth or with but a few, sparsely placed punctures. Elytra somewhat longer than broad, subequal to prothorax in breadth or barely broader, the sides almost straight and parallel from base to apex, the apices of each elytron somewhat arcuate; disk flattened, obliquely declivous near side margins, a short lateral carina near hind angles, the striae distinctly impressed and with closely placed, moderate sized punctures generally limited to the striae, the intervals very finely, sparsely punctured. The apical abdominal segments rather finely, sparsely punctured at upper surface. Beneath, coarsely punctured in front except on propleura which are smooth, more finely and sparsely punctured behind. Length 4.5–5.5 mm., breadth 1.5 mm.

This very distinct species may be recognized by its shining appearance, bright reddish brown color, flatness, rather finely punctured pronotum, smooth propleura and well defined elytral striae. It is a coastal species found from southeastern Alaska through British Columbia, Washington, Oregon and California as far south as Carmel, Monterey County. It has been taken from beneath the bark of the Bishop pine, *Pinus muricata* Don. at Inverness, Marin Co., Calif., and the Monterey pine, *Pinus radiata* Don. at Carmel, Monterey County, California.

Trigonurus edwardsi Sharp

Elongate, subparallel, slightly convex above, shining and rather dark reddish brown in color. Head sparsely, somewhat

coarsely and irregular punctured in front, the eyes moderately flattened, much less prominent than in *crotchii*, antennae extending several segments beyond hind angles of prothorax. Prothorax perceptibly broader than long, apex emarginate, base barely arcuate, sides arcuate and narrowed from near middle to apex, straight and parallel behind; disk somewhat convex, the median sulcation well defined and lateral basal impression broad and distinctly marked, the general surface rather finely, regularly, but not closely punctured at middle and in front, though rather coarsely, closely punctured at base and in basal impressions. Scutellum smooth or finely, sparsely punctured at most. Elytra about a fifth longer than broad, broader at base than prothorax, with sides almost straight and slightly convergent from base to apex, the apices of each elytron arcuate; disk moderately convex and evenly rounded off at sides, not subcarinate, though with short and blunt carinae near hind angles, the striae not impressed but the punctures large, approximate and regularly arranged in rows, the intervals impunctate. The apical abdominal segments moderately coarsely, shallowly punctured above in front near elytra, more finely towards apex, the general surface also finely alutaceous. Beneath coarsely punctured in front and more finely behind, the propleura punctured inwardly but more or less smooth outwardly. Length 4.5–5.5 mm., breadth 1.5–1.75 mm.

This species according to its characters as well as its distribution would have to be placed as an intermediate between *crotchii* and *caelatus*. With the former it shares the finer pronotal punctuation and comparative smooth scutellum. The propleura are also partially smooth. With *caelatus*, it shares the compact slightly convex body and large elytral punctures. Its own peculiar features are the poorly developed eyes, practical absence of elytral striae and very large regularly arranged elytral punctures. It is also a coastal species. I have collected it at Port Angeles, The Forks and Seattle, Washington; Hydesville, Humboldt Co., Guerneville, Sonoma Co., various places in Marin Co., and have studied specimens from Santa Cruz, Calif., collected by Mr. E. P. Van Duzee.

Trigonurus caelatus Le Conte

Elongate, subparallel, flattened, moderately shining, reddish brown in color. Head coarsely, irregularly punctured, eyes moderately prominent, antennae reaching beyond hind angles of prothorax. Prothorax slightly broader than long, apex slightly emarginate, base barely arcuate at middle, sides rounded in front and straight and parallel behind; disk somewhat convex, with distinct median longitudinal impression,

well defined lateral basal impressions and coarsely, closely and rather regularly punctured over entire surface. Scutellum coarsely punctured. Elytra at least one-eighth longer than broad, base a bit broader than base of prothorax, the sides almost straight and parallel or just perceptibly arcuate, the apices evidently rounded; the disk slightly convex, declivous at sides and faintly carinate only at humeri and near hind angles, the striae faintly impressed and with large, rather closely placed punctures which are more or less regularly arranged in rows on front but with a tendency to become slightly irregular at sides and behind, the intervals uneven and with a few scattered minute punctures. The apical abdominal segments, moderately coarsely, closely and somewhat aciculate punctured. Beneath coarsely punctured in front on the propleura as well as sternum, more finely and shallowly punctured behind. Length 5.5–6 mm., breadth 1.5–1.75 mm.

This species is the characteristic species of the Sierra Nevada Mountains, found everywhere under the bark of the yellow pine from Shasta County to Tulare County. Its distinctive features are its coarsely, rather regularly punctured pronotum and elytra, the coarsely punctured scutellum and propleura, elongate parallel form and slightly convex upper surface.

Trigonurus rugosus Sharp

Similar to *Trigonurus caelatus* Lec. but with the pronotal punctures larger, more approximate and confluent as well as the general surface quite rugose and subopaque; and the elytra with the striae poorly defined except towards base and the punctures more or less irregularly disposed and anastomosing, the intervening areas also more or less irregular and rugose, and the general surface somewhat dull as a consequence.

This insect which seems to be confined to the mountains in the neighborhood of Mt. Shasta, California, may prove to be but a subspecies of *caelatus*. So far, it stands apart and should be considered as distinct until we can find specimens from presumed intermediate territory which bridge the gap between the two.

EXPLANATION OF PLATE VIII.

- Fig. 1. *Trigonurus dilaticollis* n. sp.
- Fig. 2. *Trigonurus caelatus* Le Conte.
- Fig. 3. Prothorax and elytra of *Trigonurus crotchii* Le Conte.
- Fig. 4. Prothorax and elytra of *Trigonurus edwardsi* Sharp.
- Fig. 5. Prothorax and elytra of *Trigonurus rugosus* Sharp.



Van Dyke, Edwin C. 1934. "The North American species of *Trigonurus* Muls. et Rey (Coleoptera-Staphylinidae)." *Bulletin of the Brooklyn Entomological Society* 29, 177–182.

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