

*bulariae* (Pl. 88, fig. 9) is also recorded in the text (p. 520) from N. America; the species looks like a Geometer, but I fail to recognize it and think that possibly the locality given may be erroneous; the figure is striking enough to make identification fairly easy.

In the light of the above remarks the following changes should be made in our Check List:

- 123 *balder* Guér. instead of *balder* Bdv.                    -  
 328 *virginiensis* Guér. instead of *virginiensis* Gray.  
 404 *thoe* Guér. instead of *thoe* Bdv.  
 670 *jasminearum* Guér. instead of *jasminearum* Bdv.  
 709 *io* Guér. instead of *io* Gray.  
 1033 *lecontei* Guér. instead of *lecontei* Bdv.  
 3669 *borealis* Guér. instead of *borealis* Bdv.  
 4813 *indetermina* Griff. instead of *indetermina* Bdv.  
 4816 *delphinii* Guér. instead of *delphinii* Bdv.  
       *strigata* Guér. instead of *strigata* Bdv.  
 4889 *sepulchralis* Guér. instead of *sepulchralis* Bdv.  
       *lugubris* Guér. instead of *lugubris* Bdv.  
 6755 *asilipennis* Guér. instead of *asilipennis* Bdv.

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## Studies in the Tenebrionid Tribe Eleodiini. No. 4 (Coleop.).

By F. E. BLAISDELL, Sr., M.D., San Francisco, California.

The status of a part of the races described in the present contribution has been in doubt for a long time. The opportunity of examining larger series than had previously been at hand is clearing up slowly many enigmas in the genus *Eleodes*.

Much credit is due Mr. Nunenmacher for his enthusiasm and persistency in exploring out of the way regions.

### *Eleodes* (*Blapyllis*) *parvicollis* var. *squalida* n. var.

Form oblong-oval to ovate, slightly more than twice as long as wide. Color deep black, elytra shining, head and pronotum duller in lustre.

*Head* a little less than one-half as wide as the pronotum, comparatively small, about as wide as long; finely punctate, punctures somewhat sparse centrally, denser laterally, with a small glabrous space at the epistomal base, that sometimes extends upon the epistoma; front slightly convex and not impressed. Antennae short, not quite extend-

ing to the pronotal base, almost slender, last three joints forming a feeble, parallel club; third joint not quite as long as the next two taken together, joints four to eight longer than wide and obconical, joints four to six increasing slightly in length, the fourth distinctly longer than the fifth, joints seven and eight subequal in length, ninth and tenth triangular, about as wide as long and slightly wider than the preceding joints, eleventh short oval, scarcely longer than wide.

*Pronotum* slightly transverse, a little more than one-third wider than long; sides evenly arcuate in anterior four-fifths, more strongly so just before the somewhat suddenly formed basal constriction at basal fifth, here the sides are straight and parallel; apex a little wider than the base and truncato-sinuate; apical angles obtuse and scarcely rounded; base quite truncate, and the angles distinctly rectangular; disk evenly convex from side to side, not strongly so, rather finely punctate, punctures evenly dispersed, separated by once or thrice their diameters, slightly denser and feebly asperate laterally.

*Propleurae* not rugose and sparsely punctate.

*Elytra* oval, slightly oblong, less than twice as long as wide; humeri distinct, narrowly rounded, and not in the least prominent; base truncate; sides more or less moderately arcuate; disk moderately convex, rather strongly rounded laterally, inflexed sides feebly arcuate, posteriorly arcuately declivous, punctures moderately coarse and strong, rather closely placed and more or less serial in arrangement, series rather closely placed, strial punctures scarcely coarser than those of the intervals and separated by about their own diameters, intervals sparsely punctate, all the punctures becoming more irregular and confused laterally, the strial series almost distinct to the lateral declivity; surface scarcely asperate, setae not visible.

*Parapleura* moderately coarsely and densely punctate.

*Sterna* rather densely and not coarsely punctate. Prosternum not mucronate.

*Abdomen* shining and not coarsely nor densely sculptured, slightly rugulose.

*Legs* moderate in length and stoutness.

♂.—Oblong-oval, slightly narrowed anteriorly, sides of elytra less arcuate, body narrower; abdomen less convex and feebly oblique to the sterna. Protarsi with yellow pads on the first three joints, pads dense and convex on joints one and two, pad transverse and composed of straight golden spinules at apex of joint three; on the fourth joint the spinules are lateral and the plantar groove is open. Mesotarsi with a small pad at apex of first joint.

♀.—Ovate, elytra broader. Abdomen horizontal and more strongly convex. Tarsi without pubescent pads beneath.

*Measurements*.—♂, length 12.8 mm., width 5.5 mm. ♀, length 13.0 mm., width 6.0 mm.

*Types*: ♂ and ♀ in the author's collection. Collectors Blaisdell and Letcher.

*Type locality and habitat*: Davis' Meadow near Railroad Flat, Calaveras County, California. Elev. 1400 ft., June. A series of fifteen specimens.

*Remarks*: At first glance *squalida* resembles *cordata* in form and elytral sculpturing, except the serial arrangement; the pronotal punctuation is that of *parvicollis*. It is of interest to note that the pronotum is exactly of the same form and proportion in both sexes—equally arcuate and equally constricted at base.

*Squalida* is one of the many interesting geographical races of *parvicollis*, and still more so when we consider that a race of *cordata* inhabits the same region and presents analogous variations of sculpturing—namely *horrida*, described below.

The environment is a small meadow surrounded by pines (*Pinus ponderosa* Dougl.) with white oaks (*Quercus lobata* Nees.) in the open areas. The ground is more or less shaded and the usual mat of pine needles covers the ground among the pines, and in the open under the oaks, the oak leaves, dead branches and bark cover the ground. Since the series of *squalida* was collected, some twenty years ago, a fire has swept the region and greatly thinned out the pines. In this same spot *Omus blaisdelli* Casey was taken.

**Eleodes (Blapyllis) pimelioides var. patruelis n. var.**

Moderately robust, ovate to ovate-oval, dull in lustre, and about twice as long as wide; prothorax more or less strongly constricted at base, densely punctate, intervals mere lines; elytra sculptured with small and more or less rounded granules or tubercles laterally, subsparately punctate each side of the suture; tubercles shining at summit, not reclinate or distinctly piliferous.

*Head* densely and somewhat coarsely punctate. Antennae somewhat shorter than in *pimelioides*, otherwise the same.

*Pronotum* widest at the middle, about one-third of the length wider than long; sides evenly arcuate in front of the middle and convergent, slightly subangulate at the middle, and thence obliquely and feebly arcuate to become sinuate at basal seventh, and then straight and parallel to the basal angles, the latter rectangular; base feebly arcuate; apex feebly emarginate with angles obtuse.

*Elytra* not broadly oval to suboblong, widest at the middle and about one-half wider than long; disk more or less evenly and feebly convex in the central area, broadly and strongly convex laterally, and more or less vertically declivous posteriorly; surface sculpturing without any evidence of order, intervals between the tubercles not rugose, laterally the tubercles are feebly asperate and the setae minute. Otherwise as in *pimelioides*.

♂.—Narrower and oblong-ovate. Abdomen feebly convex, first segment somewhat impressed at middle; feebly oblique to the sterna. First two joints of the protarsi with darkish tufts of pubescence, the tuft of the first joint is truncate at tip, larger and more rounded than that of the second, here the tuft is apical and transverse; the third joint has a divided tuft and the plantar groove is distinct, the mesotarsi have a quite small, transverse, apical tuft on the first joint.

♀.—Broader and ovate. First joint of the protarsi rounded and thickened at tip beneath; second and third joints transversely thickened at tips.

*Measurements*.—Length, 10.0 (♂) to 11.5 (♀) mm.; width, 5.0 (♂) to 5.75 (♀) mm.

*Types* (♂ and ♀) in the collection of the California Academy of Sciences.

*Type locality*: Provo Canyon, Wasatch Mountains, Utah. Collector J. R. Slevin, May 21st, 1913. Number of specimens studied, 19.

*Remarks*: *Patruelis* is rather more robust than *pimelioides*, the sculpturing finer, the sides of the pronotum are more broadly rounded and the constriction is distinctly shorter.

***Eleodes (Blapyllis) cordata* var. *horrida* n. var.**

Form as in *cordata*. Deep black, polished and shining. Head sculptured as in *cordata*. Pronotal disk coarsely, very densely, deeply and more or less confluent punctate; intervals mere convex lines.

*Elytra* very coarsely, densely and rugosely muricato-tuberculate throughout, with longitudinal series of punctures that are more or less distinct.

♂.—Narrower than in typical *cordata*.

♀.—*Elytra* less broadly oval.

*Measurements*.—♂, length, 10.5 mm.; width, 4.5 mm. ♀, length, 11.0 mm.; width, 5.7 mm.

*Types*: ♂ and ♀ in the author's collection. Collectors Blaisdell and Letcher.

*Type locality and habitat*: Davis' Meadow, near Railroad Flat, Calaveras County, California; elev. 1400 ft., June.



*Remarks:* *Horrida* is very coarsely sculptured and with longitudinal series of punctures on the elytra. The sculptural deviations from the typical form are analogous to those presented by *squalida*.

In the monograph (Bull. 63, U. S. Nat. Mus.) specimens from Calaveras County were referred to the typical form of *cordata*; the latter is found on the San Francisco peninsula, and in the Sacramento and San Joaquin Valleys, but not extending into the foot-hills of the western slope of the Sierra Nevada Mountains. In *horrida* the pronotum is different in the two sexes as in typical *cordata*; in *patruelis* the pronotum presents much less sexual differentiation and is almost similar in form in the two sexes.

***Eleodes (Blapyllis) inculta* var. *affinis* n. var.**

Form of *inculta*, from which it differs as follows: Males rather more elongate; pronotum narrower in both sexes, with the side margins distinctly and briefly sinuate before the basal angles, the latter slightly prominent. Elytral sculpturing rather more asperate, but not coarsely so.

In the male type the pronotum is about as wide as long, with the sides evenly arcuate and just the least sinuate before the subdentiform apical angles; tarsi as in *inculta*.

In the female the tarsal pubescence is somewhat heavier.

*Measurements*.—Length, 12.5 to 15.5 mm.; width, 5.7 to 8.6 mm.

*Types*: ♂ and ♀ in the collection of the California Academy of Sciences.

*Type locality*: Santa Cruz Island. Collector J. R. Slevin, April 13th, 1913. Number of specimens studied, 7.

*Habitat*: Santa Cruz and San Miguel Islands, off the coast of California, south of Santa Barbara.

*Remarks*: The series of *affinis* have been compared with twenty-six specimens of *inculta*, collected on the Island of San Miguel. These specimens of *inculta* are smaller than those previously studied from the Island of Santa Rosa (see p. 331, Bull. 63, U. S. Nat. Museum).

***Eleodes vandykei* Blais.**

This should be graded as a distinct species, as it is evidently more closely related to *granulata* than to *letcheri*. A series

of thirty-two specimens has been collected in Klamath County, Oregon, by Mr. Nunenmacher. The specimens exhibit a tendency to develop elytral tubercles as in *granulata*. This is also the case in *parvula*, which should henceforth be recorded as a race of *vandykei*.

Specimens have recently been examined from Medicine Lake, Siskiyou County, California; they were collected on August 16th.

**Eleodes hornii** Blais.

Among specimens collected in Plumas and Eldorado Counties, California, by Mr. Nunenmacher, were nine examples of this rare and distinct species. These agree every way with the types as regards form, but present some variation in punctuation and size. One male, however, agrees perfectly with the type. In the other specimens the prothoracic and elytral punctuation is slightly coarser, denser and more irregular in distribution. In the types there is no evidence of a serial arrangement of the elytral punctures, in four of those collected by Mr. Nunenmacher there is. The largest male collected in Eldorado County has a length of 14.5 mm., and a width of 5.5 mm. The largest female and the one presenting the greatest amount of variation in sculpturing, has a length of 14.5 mm., and a width of 6.0 mm. In *hornii* the humeri are absent and the elytra evenly oval.

**Eleodes hornii**, var. **monticula** n. var.

Opaque, form as in *hornii*. Prothorax smaller and more finely punctured. Elytra more coarsely punctured, the punctures being somewhat eroded and at times sublineate in arrangement. The elytra are less evenly oval, being just a little more produced at apex and the latter more broadly rounded.

In the male the humeri are slightly evident.

*Monticula* is more convex than is typical *hornii*. In the monograph of the Eleodiini (Bull. 63, U. S. Nat. Mus.) the specimens now described were referred to *hornii* and collected at Mokelumne Hill, Calaveras County, California, elev. 1300 ft.

*Type* in the author's collection.

*Type locality*: Mokelumne Hill, Calaveras County, California.

*Habitat*: California (Calaveras County:—Mokelumne Hill, April. Shasta County:—Castella, July. Tulare County:—Cedar Creek, June; Rattlesnake Creek, July (Hopping's collection)).

**Eleodes dentipes**, var. **perpunctata** n. var.

Syn. *E. dentipes forma elongata punctata*.

Mr. Nunenmacher has quite recently collected an extensive series of *perpunctata* (60 specimens), in Tehama, Butte and Shasta Counties, California. The specimens are distinctly homomorphic and represent a valid geographical race. At the time that the Monograph of the Eleodiini was written, the specimens referred to the elongate punctate form of *dentipes*, came from several widely separated regions and were mixed with other races and forms.

There were no data to indicate that *perpunctata* was capable of reproducing its characteristics with any degree of stability, as has been proved by the above series. The *forma elongata laevis* of the Monograph now becomes the smooth elongate form of *perpunctata*.

In *perpunctata* the elytra are more or less minutely granulo-rugulose, more or less strongly punctate, with the punctures in series.

*Type* in the author's collection.

*Type locality*: Placerville, Eldorado County.

*Habitat*: California (Eldorado County:—Placerville. Tehama County, April. Trinity County:—Haybrook, April, (Hopping's collection). Contra Costa County:—Martinez. San Mateo County:—San Jose).

**Eleodes gigantea** Mann.

A series of specimens taken in northern California by Mr. Nunenmacher, answers to Mannerheim's description—"Elytra finely granulo-punctate," and proves that the typical form of *gigantea* is northern and not southern in habitat.

The pronotal disk is rather less sparsely but distinctly punctate.

The elytral surface is very finely rugulose, with punctures distinct and less than moderate in size, plainly serial; in each series the punctures are separated by a space equal to a little more than their own diameters; the intervals are narrow, with a single row of irregularly placed punctures; at the periphery the punctures are more irregular.

In size the specimens are as large as any collected in southern California. The females have the pronotal sides less arcuate, as a result the pronotal width is less.

*Measurements.*—♂, length, 22.0 to 33.5 mm.; width, 7.75 to 9.5 mm. ♀, length, 24.5 to 29.0 mm.; width, 10.0 to 13.0 mm.

Fifteen examples collected in Tehama County, California, April 27th, 1913.

*Eleodes gigantea*, var. **meridionalis** new var.

The form of *gigantea* occurring in southern and Lower California, and from as far north as the Santa Cruz Mountains, should be considered a geographical race, to which I give the name *meridionalis*. The chief distinguishing characters may be stated as follows:

Pronotal disk rather sparsely and feebly punctulate, sides more strongly arcuate in the female; elytral surface finely, irregularly and evenly punctate, rarely with closely placed series of punctures.

*Types:* ♂ and ♀ in the author's collection.

*Type locality:* San Diego, California.

*Habitat:* California (Kern and Santa Cruz Counties southward to northern Lower California).

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## A New *Agrias* from Guatemala (*Nymphalidae*, Lep.).

By W. SCHAUS, Washington, D. C.

In the supplement to the Rhopalocera of the *Biologia Centrali-Americana* reference is made on page 696, under *Agrias aedon*, to a letter from Senor Don Juan Rodriguez, who states that he has a male of this species captured in Vera Paz, Guatemala.

After the death of Don Juan, his sons kindly gave me this specimen in remembrance of their father, and on examination I find it is a female belonging to a new species which I take pleasure in naming after my late friend.