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A STUDY OF THE TENEBRIONIDAE OF SOUTH- EASTERN IOWA

OWEN J. SMITH

In his study of the Iowa Tenebrionidae the writer has classified specimens collected throughout the state both by students of Iowa Wesleyan College and by himself. These specimens are in the collection of Iowa Wesleyan College.

In the following list of Tenebrionids known to occur in Iowa, those which are listed by Wickham in his "Coleoptera of Iowa" are marked with a "W" and those in the collection of Iowa Wesleyan by an "I."

List of Iowa Tenebrionidae

LENGS' CATALOGUE NUMBER	SCIENTIFIC NAME	
11933	<i>Eleodes tricolorata</i> (Say)	I. W.
11953	<i>Eleodes suturalis</i> (Say)	W.
12207	<i>Blapstinus metallicus</i> (Fab.)	W.
12208	<i>Blapstinus interruptus</i> (Say)	W.
12227	<i>Blapstinus moestus</i> Melsh.	I. W.
12295	<i>Bolithotherus cornutus</i> (Panz.)	I. W.
12305	<i>Diaperis maculata</i> Oliv.	I. W.
12308	<i>Hoplocephala viridipennis</i> (Fab.)	I. W.
12309	<i>Hoplocephala bicornis</i> (Fab.)	I. W.
12314	<i>Platydemus excavatum</i> (Say)	I. W.
12318	<i>Platydemus ruficornis</i> Sturm.	I. W.
12321	<i>Platydemus ellipticus</i> (Fab.)	I. W.
12323	<i>Platydemus americanus</i> Cast & Brill.	W.
12327	<i>Platydemus picilabrum</i> Melsh.	W.
12328	<i>Platydemus subcostatum</i> Cast & Brill.	I. W.
12332	<i>Alphitophagus bifasciatus</i> (Say)	W.
12343	<i>Tribolium ferruginum</i> (Fab.)	W.
12345	<i>Tribolium confusum</i> Jacq.	I. W.
12346	<i>Dioedus punctatus</i> Lec.	I. W.
12349	<i>Palorus ratzeburgi</i> Wissm.	I.
12353	<i>Uloma impressa</i> Melsh.	I. W.
12354	<i>Uloma imberbis</i> Lec.	I. W.
12355	<i>Uloma mentalis</i> Horn	I. W.
12386	<i>Scotobates calcaratus</i> Fab.	I. W.
12389	<i>Merinus laevis</i> (Oliv.)	I. W.
12390	<i>Xylopinus saperdioides</i> (Oliv.)	I. W.
12392	<i>Haplandrus fulvipes</i> (Hbst.)	I. W.
12407	<i>Alobates pennsylvanica</i> (DeG.)	I. W.
12408	<i>Alobates barbata</i> (Knoch)	I.
12412	<i>Idiobates castaneus</i> (Knoch)	I. W.
12413	<i>Tenebrio obscurus</i> Fab.	I. W.
12414	<i>Tenebrio molitor</i> L.	I. W.

12415	<i>Tenebrio picipes</i> Hbst.	I. W.
12432	<i>Paratenetus punctatus</i> Spin.	I.
12433	<i>Paratenetus fuscus</i> Lec.	W.
12485	<i>Meracontha contracta</i> (Beauv.)	I. W.
12488	<i>Strongylium tenuiolle</i> Say	I. W.
12489	<i>Strongylium terminatum</i> Say	W.

In preparing the following key the writer has taken the liberty of listing characters for the species given for Iowa only by Wickham as well as for specimens in the Iowa Wesleyan College Collection. In Plate I following the key illustrations of some of the more difficult characters will be found. Illustrations marked with the same letter of the alphabet oppose each other (e.g. a and a'). Plate II is composed of photographs of all the species which were available except for a few species which were separated from those photographed by only slight variations. The size of each specimen can be determined by the squared background, each square representing 1-10 of an inch.

In the preparation of the key frequent references were made to Blatchley's "Coleoptera of Indiana," Horn's "Article II — On Revision of the Tenebrionidae of America, North of Mexico." The writer is also much indebted to Dr. Wickham for verification of our species and to Professor H. E. Jaques, whose suggestions have been very valuable.

KEY TO THE IOWA GENERA AND SPECIES OF FAMILY TENEBRIONIDAE

- 1a. Front of head entirely corneous or horn-like in structure, never hinged with a leather-like clypeus. -2 (Plate I a).
- 1b. Front with a coriaceous or leather-like margin, or a coriaceous band between it and the labrum. -36 (Plate I-a').
- 2a. Tarsi not compressed, first joint moderate or elongate; cheeks not sulcate; antennae 11 jointed. -3.
- 2b. Tarsi compressed, first joint short; cheeks sulcate; surface very rough; antennae 10 segmented. Only one species is known from Iowa. *Bolititho-therus cornutus* (Panz.) (Plate II-1).
- 3a. Eyes less prominent than sides of front, more or less transverse, always emarginate in front. -13 (Plate I-b).
- 3b. Eyes more prominent than sides of front, feebly or not emarginate; form oval or elongate oval; length less than 7 mm. -4 (Plate I-b').
- 4a. First joint of hind tarsi not longer than second; body broadly oval, strongly convex; length 6-6.5 mm. One species *Diaperis maculata* Oliv. (Plate II-4).
- 4b. First joint of hind tarsi longer than second. -5.
- 5a. First joint of hind tarsi longer than second and third together. -7.
- 5b. First joint of hind tarsi not longer than second and third together; small, 3-3.5 mm.; dorsum bluish or greenish. -6. Genus *Hoplocephala*.

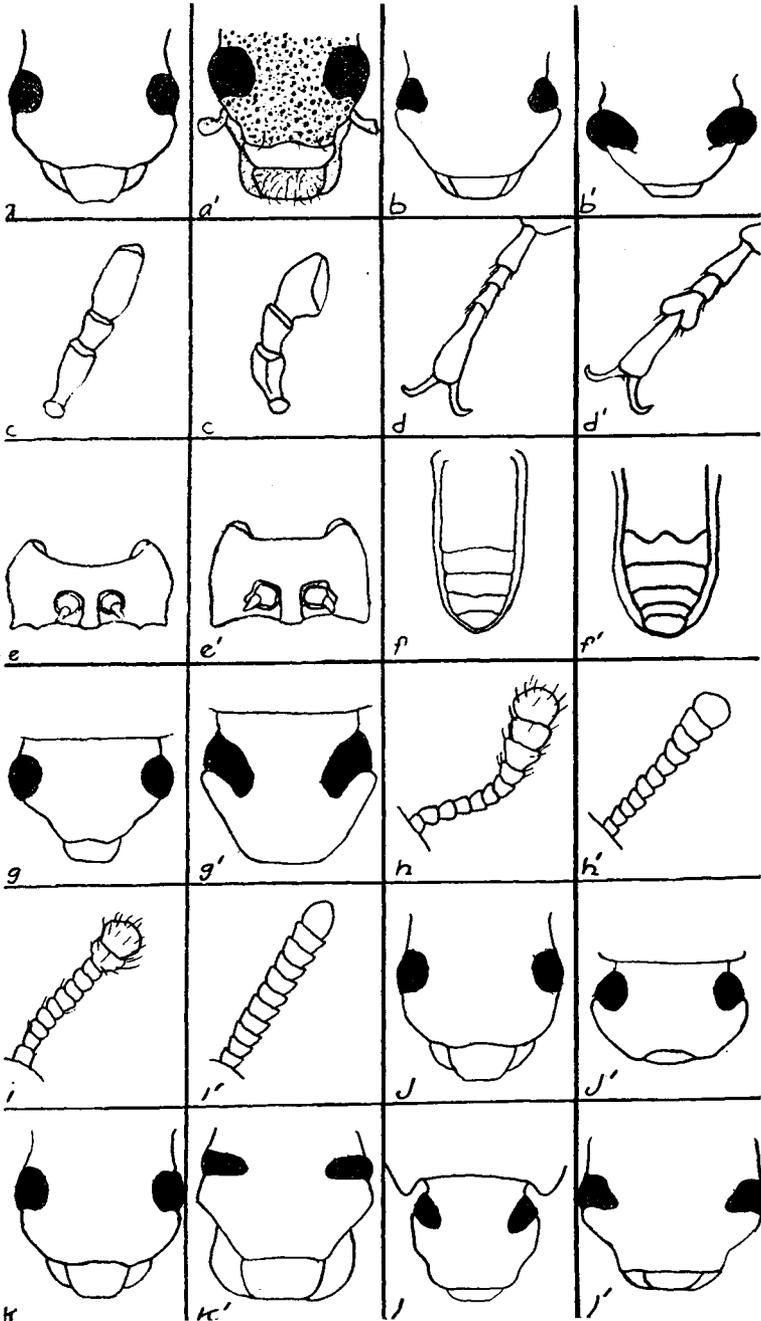


Plate I

- 6a. Thorax and legs orange-red, *vividipennis* (Fab.) (Plate II-5).
- 6b. Entire upper surface bluish-green, thorax sometimes varying to brown. *Bicornis* (Fab.) (Plate II-6).
- 7a. Last joint of maxillary palp elongate triangular; form elongate oval; elytra yellowish with darker markings; last four joints of antennae broader, loosely connected, last one rounded; length less than 3 mm. Our only species *Alphitophagus bifasciatus* (Say). Listed by W. (Plate I-c).
- 7b. Last joint of maxillary palp broadly triangular; body broadly oval, strongly convexed; length 4 mm. or more. -8 (Plate I-c') Genus *Platydema*.
- 8a. Front with horns or tubercles, front concave; upper surface shining, *excavatum* (Say) (Plate II-7).
- 8b. Head without horns or tubercles. -9.
- 9a. Surface opaque. -10.
- 9b. Surface shining black. -11.
- 10a. Elytra wholly black, *ruficornis* Sturm. (Plate II-8).
- 10b. Each elytron with oblique red spot on basal half, *ellipticum* (Fab.) (Plate II -9).
- 11a. Prosternum horizontal, its apex prominent; head with transverse impression, *americanum* Cast. & Brill. Listed by W.
- 11b. Prosternum convex between coxae, its apex deflexed and obtuse. -12.
- 12a. Elongate oval; black with bronzy tinge; not over 5 mm. *Picilabrum* Melsh. Listed by W.
- 12b. Broadly oval; larger 7-6 mm., *Subcostatum* Cast. & Brill. (Plate II-10).
- 13a. Next to last joint of tarsi entire. -15. (Plate I-d).
- 13b. Next to last joint of tarsi bilobed; surface coarsely punctate; sides of thorax with five to seven teeth; length less than 4.5 mm. -14. Genus *Paratenetus* (Plate I-d').
- 14a. Sides of thorax rounded in front, gradually narrowing behind middle; length 3-4 mm., *Punctatus* Spin. (Plate II-11).
- 14b. Sides of thorax rounded from front to hind angles; length 3-3.5 mm., *fuscus* Lec. Listed by W.
- 15a. Front coxae rounded; middle coxae with trochantin; antennae with third joint usually longer than those following. -22. (Plate I -e).
- 15b. Front coxae sub-transverse; middle coxae without trochantin; third joint of antennae short; length less than 12 mm. -16 (Plate I -e').
- 16a. Epipleura entire, sometimes very narrow at tip; length not over 5 mm. -19. (Plate I-f).
- 16b. Epipleura short; larger over 6.5 mm. -17. Genus *Uloma* (Plate I-f').
- 17a. Lower edge of front femora grooved for their full length. -18.
- 17b. Lower edge of front femora not grooved, but with a rather broad pit near the tip, *mentalis* Horn. Listed by W.
- 18a. Last joint of antennae oblique, middle plate of antennae transverse, *imberbis* Lec. (Plate II-2).
- 18b. Last joint of antennae rounded at tip; male with broad deep impression behind middle of thorax, *impressa* Melsh. (Plate II-3).
- 19a. Eyes as prominent as sides of front, rounded, never emarginate in front. -21 (Plate I-g).

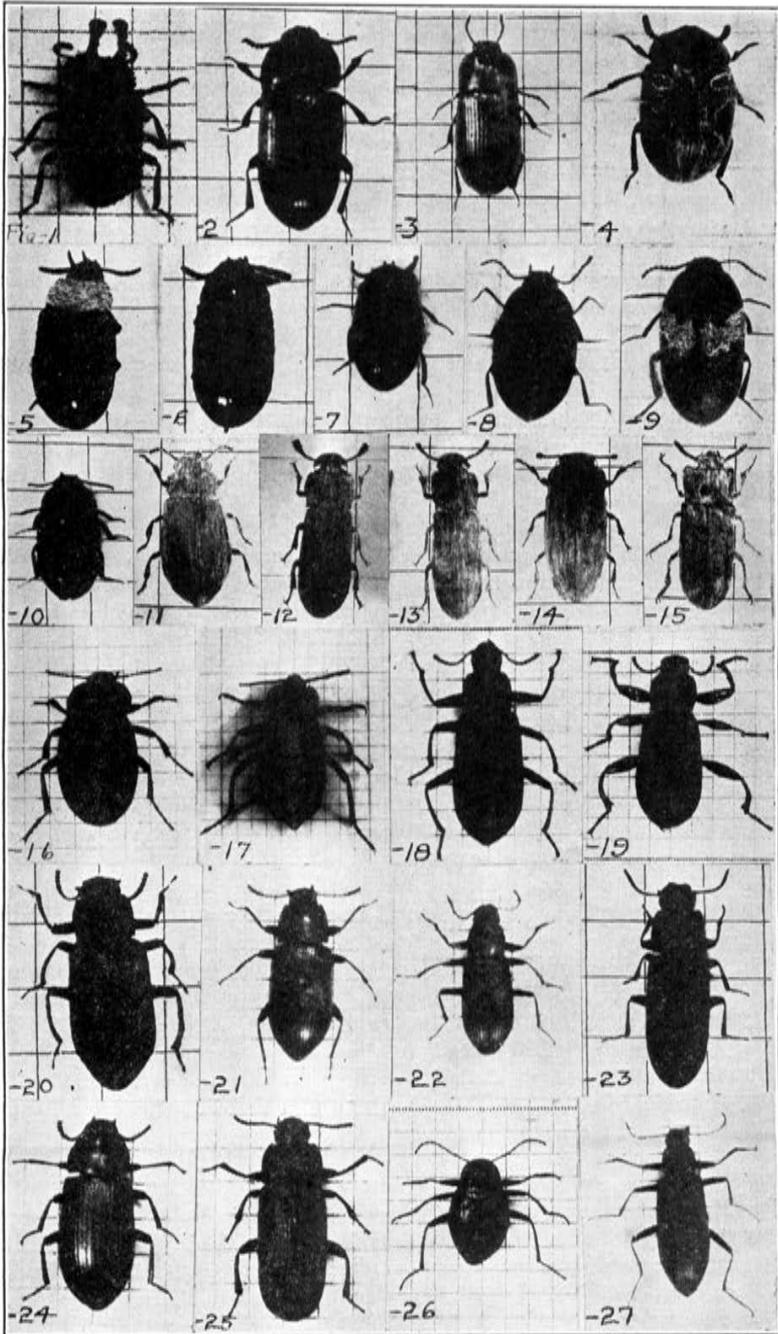


Plate II

- 19b. Eyes less prominent than sides of front, transverse, emarginate. -20. Genus *Tribolium* (Plate I-g').
- 20a. Antennae with last three joints forming a flattened club. (Plate I-h), *ferruginum* (Fab.) (Plate II-12).
- 20b. Antennal joints gradually broader to tip. (Plate I-h'), *confusum* Jacq. (Plate II-13).
- 21a. Antennae with last two joints forming distinct club; front without transverse impression. (Plate I-i). *Dioedus punctatus* Lec. (Plate II-14).
- 21b. Antennae stout, joints gradually broader to tip; front with distinct transverse impression. (Plate I-i'). *Palorus ratzeburgi* Wissm. (Plate II-15).
- 22a. Front feebly dilated at sides, size usually 12 mm. or more. -25. (Plate I-j).
- 22b. Front broadly dilated at sides, emarginate in front; front tarsi of male dilated; form short, oval; 6-10 mm. -23. (Plate I-j'). Genus *Blapstinus*.
- 23a. Elytral striae more or less interrupted; pubescence scant, easily removed, often almost absent. -24.
- 23b. Elytral striae not interrupted, pubescence persistent; hind angles of thorax somewhat prolonged backwards, *moestus* Melsh. Listed by W.
- 24a. Surface lustre strongly bronzed; elytral striae more coarsely punctured and widely and frequently interrupted, *metallicus* (Fab.). Listed by W.
- 24b. Surface lustre rarely bronzed; color piceous-black, elytra slightly paler; elytral striae more finely punctured and less interrupted, *interruptus* (Say). Listed by W.
- 25a. Tarsi with silken pubescence beneath; distal end of tibiae mutic; eyes broadly transverse. -27 (Plate I-k).
- 25b. Tarsi setose beneath; tibia armed with two large spurs on distal end; elytra broadly embracing abdomen; eyes narrow, sub-uniform. -26 (Plate I-k'). Genus *Eleodes*.
- 26a. Thorax and elytra flattened, more or less deflexed at sides; elytra with alternate interspaces more elevated, *tricostata* (Say) (Plate II-16).
- 26b. Thorax and elytra with very acute margin, the former always having sides reflexed, the latter frequently so; many specimens have a broad red band along suture of elytra, *suturalis* (Say) (Plate II-17).
- 27a. Tarsi densely clothed beneath with fine, short, silken pubescence. -28.
- 27b. Tarsi rather sparsely clothed beneath with coarse pubescence. -33.
- 28a. Antennae distinctly shorter than head and thorax, their outer joints transverse, the last joint sub-quadrate, rounded at tip. -29.
- 28b. Antennae more slender, as long or longer than head or thorax. -32.
- 29a. Epipleurae not reaching tips of elytra. -31.
- 29b. Epipleurae entire, narrowing at apex. -30. Genus *Alobates*.
- 30a. Middle plate of mentum smooth, *pennsylvanica* (DeG.) (Plate II-18).
- 30b. Middle plate of mentum with a rather long tuft of yellowish hairs, *barbata* (Knoch.). (Dorsal view almost identical to above.)
- 31a. Femora strongly clubbed, black shining; *Merinus laevis* (Oliv.) (Plate II-19).

- 31b. Femora slender, in our species reddish-brown. *Hapladrus fulvipes* (Hbst.) (Plate II-20).
- 32a. Front margin of head thickened and slightly reflexed; under side of femora of males with elongated patch of yellowish hair near base, and armed with a short blunt horn near middle. *Scotobates calcaratus* Fab. (Plate II-21).
- 32b. Front margin of front not thickened or reflexed. *Xylopinus saperdioides* (Oliv.) (Plate II-22).
- 33a. Sides of front rather widely dilated; eyes strongly emarginate in front; margin of thorax wide, rather strongly reflexed. (Plate I-1). One species *Idiobates castaneus* (Knoch.) (Plate II-23).
- 33b. Sides of front less strongly dilated; eyes less strongly emarginate in front; margin of thorax less strongly reflexed. -34. (Plate I-1'). Genus *Tenebrio*.
- 34a. Thorax densely or confluent punctate, always with punctures of equal size over entire dorsum; size larger -13-17 mm. -35.
- 34b. Thorax with punctures much broader and deeper on sides than at apex; — smaller 10-13 mm., *picipes* Hbst. (Plate II-24).
- 35a. Thorax and elytra densely and confluent punctate, surface dull, opaque, *obscurus* Fab. (Shape very similar to following.)
- 35b. Surface densely but distinctly punctate, more or less shining, *molitor* L. (Plate II-25).
- 36a. Inner wings wanting; metasternum very short; body robust, convex. Our only species. *Meracantha contracta* (Beauv.) (Plate II-26).
- 36b. Inner wings present; metasternum long, body slender. -37. Genus *Strongylium*.
- 37a. Thorax as long as wide, without median groove, *tenuiollae* Say (Plate II-27).
- 37b. Thorax broader than long, with a shallow but plainly defined median groove, *terminatum* Say. Listed by W.

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