

# A Review of the Genus *Blapstinus* (Coleoptera: Tenebrionidae)<sup>1</sup>

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## ABSTRACT

This is an introduction to a revision of the genus *Blapstinus* in America north of Mexico. Authorship for the genus, generally attributed to Latreille, is reassigned to Sturm. *Blaps punctatus* Fabricius is interpreted as the monobasic type species. The genus *Blapstinus* is described and its distribution illustrated. Generic relationships are clarified with reference to generic identification. A key is presented to North American genera of the Tribe Pedinini.

## INTRODUCTION

This is the first in a series of papers constituting a revision of the genus *Blapstinus* in America north of Mexico. The purpose of this paper is to bring together all available literature, clarify the authorship of the genus, describe the genus, discuss generic relationships, and present a key to North American genera of the Tribe Pedinini. Subsequent papers will deal with the morphology, bionomics, and systematics of the group.

The genus *Blapstinus* has been in a state of taxonomic confusion for over three-fourths of a century. Approximately 90 species have been assigned to the genus at one time or another. *Blapstinus* is a New World genus distributed from Canada through Argentina. Gebien (1937) listed 53 species for North America, 20 for Central America, and 15 for South America. Arnett (1962) attributed 52 species to the genus and listed *Blapstinus* as the third largest North American genus within the family Tenebrionidae. The genus belongs to the Tribe Pedinini, in which Arnett (1962) included 13 genera comprised of 92 North American species. Therefore, the genus *Blapstinus* has been credited with constituting over half the known species within the Tribe Pedinini.

Horn (1870) made the earliest attempt

to monograph the genus. He presented a key to 14 North American species and included descriptions of 2 new species. Horn's key made considerable use of such taxonomic characters as color, pubescence, and luster of the integument which have made these beetles very difficult to identify. Although such characters were difficult for the taxonomist to describe and even more difficult for others to interpret, Horn's key probably was used extensively for a number of years.

Colonel Thomas Casey (1890) published the most extensive revision of the genus *Blapstinus*. He presented a key to 44 North American species, along with detailed descriptions of each species. Of the 44 species, Casey described 27 as new. Most problems encountered by recent investigators stem from trying to understand Casey's concept of a species or interpret his key. Not only did he use extensively such characters as color, pubescence, and luster of the integument, but he introduced other characters that require even greater perception to understand (to be discussed in a subsequent paper).

Although other workers have contributed to the group by the naming of new species, no workers other than Horn and Casey have attempted a detailed study of *Blapstinus*.

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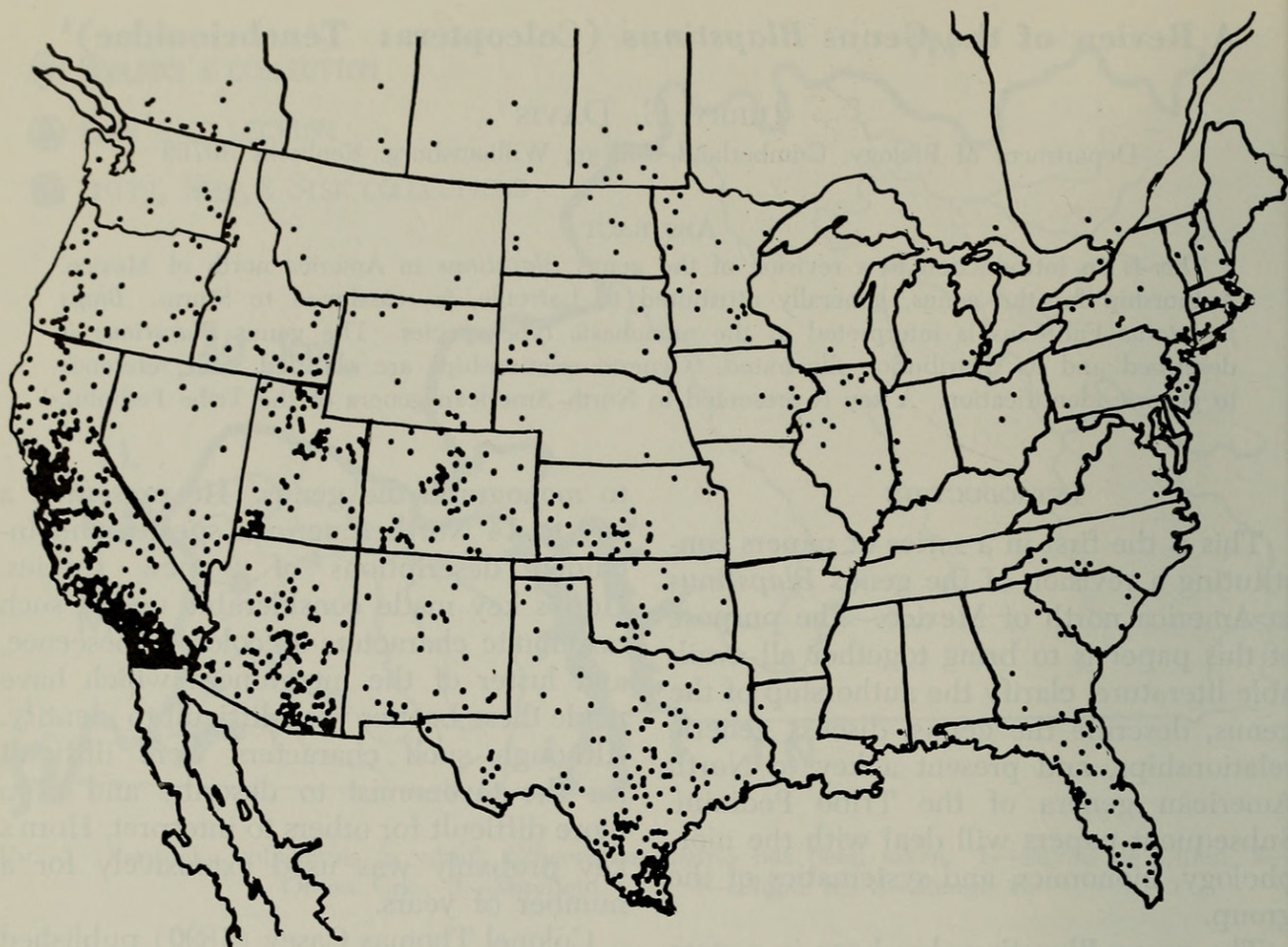


FIG. 1. Distribution of the genus *Blapstinus* in America north of Mexico.

Sciences of Philadelphia; F. Hasbrouck, Arizona State University at Tempe; I. LaRivers, University of Nevada, Reno; C. von Hayek, British Museum of Natural History; H. Leech, California Academy of Science; J. Powell, California Insect Survey; J. Campbell, Canadian National Collection; L. Pechuman, Cornell University; P. Clausen, University of Minnesota; G. Knowlton, Utah State University; R. Lavigne, University of Wyoming; J. Unzicker, Illinois Natural History Survey; J. Lawrence, Harvard University; C. Johnson, Northern Arizona University, Flagstaff; C. Triplehorn, Ohio State University; P. Oman, Oregon State University; R. Arnett, Purdue University; G. Byers, University of Kansas; G. Edwards, San Jose State University; H. Burke, Texas A&M University; F. Werner, University of Arizona; R. Schuster, University of California at Davis; S. Frommer, University of California at Riverside; W. Barr, University of Idaho; T. Spilman,

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#### GENERIC HISTORY

The early history of the generic name *Blapstinus* is confusing and open to various interpretations. Several authors have been credited with authorship of the genus, but only 3 merit serious consideration, Dejean



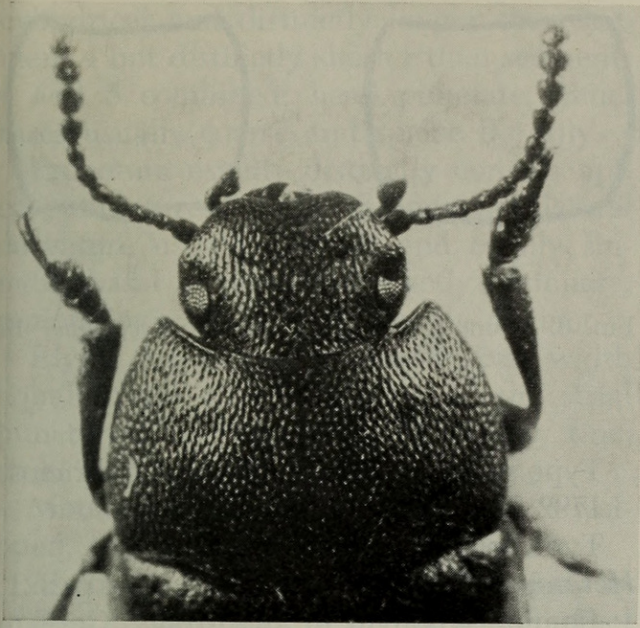


FIG. 2. Head and prothorax of *Blapstinus substriatus*, dorsal view.

(1821), Sturm (1826), and Latreille (1829). Latreille has been most often credited with the genus, but Sturm is herein credited with the genus *Blapstinus* for the following reasons.

Dejean (1821), in his catalog of Coleoptera, listed "BLAPSTINUS, Dej." without generic description. Immediately beneath the generic name is listed "(BLAPS?

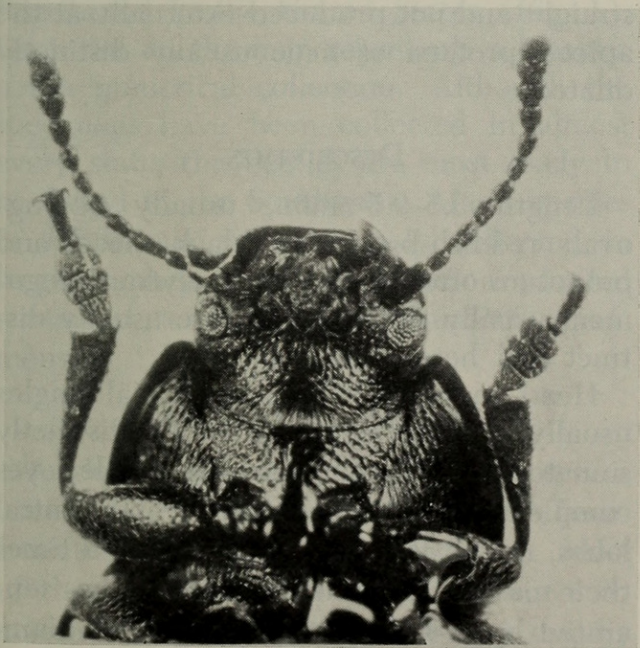


FIG. 3. Head and prothorax of *Blapstinus substriatus*, ventral view.



FIG. 4. *Blapstinus substriatus*, dorsal view.

*Fabr.*)," followed by 3 species names without description. Two of these species, "Striato-punctatus. Dej. id." and "Piceus. Dej. N.," are credited to Dejean and are nomina nuda. The third name is "Punctatus. Sch. Fabr. ? Amer. Ins." The question mark puts the name in a state of species inquirenda, thereby excluding the name from being the type species. The generic name is therefore a nomen nudum and Dejean is not credited with the genus even though he apparently used the generic name *Blapstinus* first.

Sturm (1826), in his catalog of Coleoptera, listed "Blapstinus, Dej" without generic description. Included in that genus are 2 species, "punctato-striatus. Billb. Amer. Ins." and "Punctatus. Schonh. (Blaps. F. ?) Amer. Ins." The former name is a nomen nudum, but the latter is of significance. The question mark clearly refers to the old genus "Blaps," and Sturm was not indicating doubt about "Punctatus.



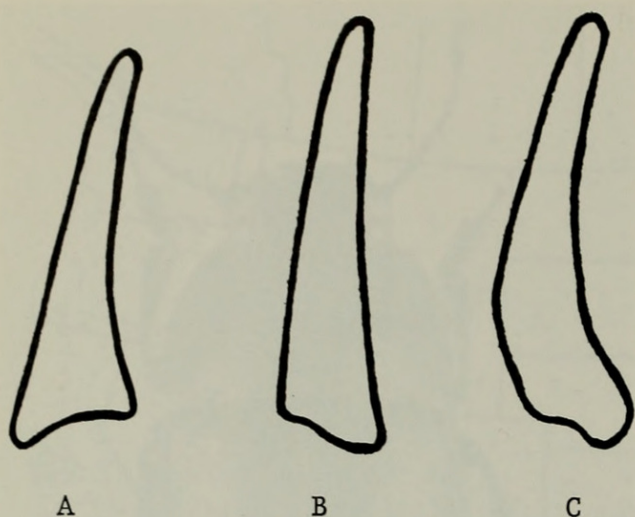


FIG. 5. Protibiae, anterior view. A. *Ulus*; B. *Blapstinus*; C. *Trichoton*.

*Schönh.*," but was referring to Schönherr (1806), who, under the name "BLAPS Punctatus," referred to Fabricius (1792) which was the original description of the species. In essence, Sturm cited *Blaps punctatus* Fabricius, 1792. This Fabrician species is interpreted as the monobasic type species of *Blapstinus* and the genus thereby attributed to Sturm.

Latreille (1829) listed "*Blapstine* (*Blapstinus*, Dej.)" with a short generic description. The spelling of the name obviously was in error. The only species he listed was "*Blaps tibidens* Schoenh.," a species originally described as "*Blaps tibidens* Quensel" in Schönherr (1806) and now in the genus *Sellio* Mulsant and Rey (1859a). If Latreille is given credit for the genus *Blapstinus*, the name *Blapstinus* would have to be synonymized with *Sellio*, and the genus now called *Blapstinus* would take the name of the oldest synonym, *Heteropus* LaPorte (1840).

#### SYNOPSIS OF GENERIC SYNONYMY

*Blapstinus* Sturm, 1826. Cat. Insecten-Sammlung, p. 101; Dejean, 1821:66; Latreille, 1829:21; Dejean, 1837:213; Waterhouse, 1845:34; Solier, 1851:232; Lacordaire, 1859:250; Mulsant and Rey, 1859a:180, 1859b:116; Horn, 1870:351; Casey, 1890:416, 1895:616.

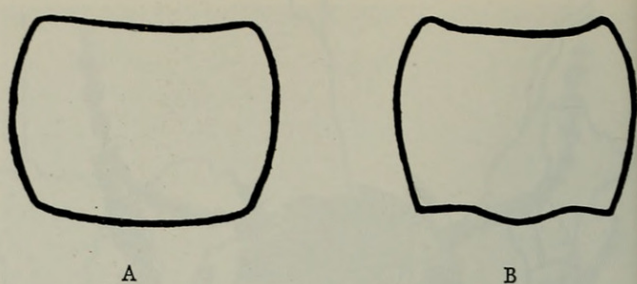


FIG. 6. Pronota, dorsal view. A. *Mecysmus*; B. *Blapstinus longulus*.

Type species: *Blaps punctatus* Fabricius, 1792:109; here designated.

Type locality: South America.

*Heteropus* LaPorte, 1840. Hist. Nat., p. 221. (Junior synonym of *Blapstinus*, Gebien, 1910:297).

*Aspidius* Mulsant and Rey, 1859a. Ann. Agric. Lyon, p. 187, 1859b:123. (Junior synonym of *Blapstinus*, Gebien, 1910:297).

*Lodinus* Mulsant and Rey, 1859a. Ann. Agric. Lyon, p. 195, 1859b:131. (Junior synonym of *Blapstinus*, Gebien, 1910:297).

#### DIAGNOSIS

Base of pronotum usually distinctly bisinuate; scutellum triangular; metathoracic wings usually well developed; protibiae straight and not produced externally at the apices; protarsi of male usually distinctly dilated.

#### DESCRIPTION

Length 3.5–9.5 mm.; usually oblong-oval; reddish-brown to black, head and pronotum often darker than elytra; integument usually shining; vestiture usually distinct and heterogeneous.

Head moderately convex; facial angles usually rounded; epistoma usually distinctly sinuate, clypeal suture usually visible; eyes completely divided into dorsal and ventral lobes, dorsal lobes separated by 3–5 times their maximum diameter, ventral lobes separated by 2–4 times their maximum diameter; antennae 11-segmented, slender, widest apically, third antennal segment usually



cylindrical and distinctly longer than segment 4 but distinctly shorter than segments 4 and 5 combined; head punctate, punctures usually coarse and sparse dorsally.

Pronotum usually distinctly convex; apical curvature usually prominent; lateral curvature usually distinct and evenly sinuate; basal curvature distinctly bisinuate; punctation variable, but usually distinct.

Elytra rounded at apex; interval width equal to 1–7 times diameter of the striae punctures, interval punctures usually fine; striae punctures usually deep.

Metathoracic wings usually well developed, fully as long as the abdomen.

Abdomen punctate; an impression usually present toward apex of the fifth abdominal segment.

Male with a basal abdominal impression usually present; anterior tarsi usually distinctly dilated; subgenital sternite usually feebly or not at all emarginate apically; tegmen of aedeagus strongly curved in lateral view, parameres fused dorsally and ventrally to form a sclerotized ring, basal piece fused dorsally and ventrally.

#### DISTRIBUTION

The more than 20,000 specimens examined during the course of this study indicate that the genus *Blapstinus* is widely distributed in the United States (Fig. 1). Each dot on the map represents a locality, not a numerical collection. Although the specimens have been collected in almost every state, the beetles are most likely to be found in the Southwest. Many species of *Blapstinus* are commonly collected in large numbers. Several collections studied contained series of more than 100 specimens.

#### GENERIC RELATIONSHIPS

A dozen genera, including *Blapstinus*, usually are included in the family Tenebrionidae within the Tribe Pedinini. Most of these genera share the following characteristics: oval, oblong-oval; eyes usually completely divided into dorsal and ventral lobes (Figs. 2, 3); third antennal segment

elongate (Figs. 2, 3, 4); epistoma emarginate (Fig. 2); apical segment of maxillary palps triangular or securiform (Fig. 2); metathoracic wings well developed, reduced, rudimentary, or absent; pro- and mesotarsi usually distinctly dilated (Figs. 2, 3, 4); tarsi spongy, spinose, or setose ventrally (Fig. 3).

*Blapstinus* Sturm is most often confused with the genera *Trichoton* Hope, *Ulus* Horn, and *Mecysmus* Horn. *Trichoton* may easily be distinguished from *Blapstinus* by the distinctly bent protibiae (Fig. 5C). *Ulus* differs from *Blapstinus* in having the protibiae produced externally at the apices (Fig. 5A). The protibiae of *Blapstinus* are straight (Fig. 5B).

One species, *Blapstinus longulus* LeConte, is commonly confused with the genus *Mecysmus*. However, the base of the pronotum is bisinuate and about as wide as the base of the elytra in *B. longulus* (Fig. 6B); the base of the pronotum in *Mecysmus* is not bisinuate and is much narrower than the base of the elytra (Fig. 6A).

The following is a key, modified from Arnett (1962), to genera of the Tribe Pedinini.

#### KEY TO NORTH AMERICAN GENERA OF THE TRIBE PEDININI

- |         |   |                         |
|---------|---|-------------------------|
| 1.      | Scutellum triangular (Fig. 4); metathoracic wings often well developed; protarsi of male usually distinctly dilated (Figs. 2, 3, 4) ..... | 2                       |
| 1'.     | Scutellum very broad and short; metathoracic wings absent; protarsi of male not dilated .....   | 7                       |
| 2 (1).  | Base of pronotum usually distinctly bisinuate (Figs. 4, 6B) .....   | 3                       |
| 2'.     | Base of pronotum not bisinuate ....   | 5                       |
| 3 (2).  | Protibiae bent (Fig. 5C) .....  |                         |
|         | ..... <i>Trichoton</i> Hope   |                         |
| 3'.     | Protibiae straight (Figs. 5A, B) ....   | 4                       |
| 4 (3'). | Protibiae produced externally at apices (Fig. 5A); body generally oval, laterally fimbriate ....  | <i>Ulus</i> Horn        |
| 4'.     | Protibiae not produced externally at apices (Fig. 5B); body oval, oblong-oval or elongate-oval, not laterally fimbriate .....             | <i>Blapstinus</i> Sturm |
| 5 (2'). | Base of pronotum evenly arcuate ....  |                         |
|         | ..... <i>Aconobius</i> Casey  |                         |
| 5'.     | Base of pronotum straight .....   | 6                       |



- 6 (5'). Basal width of pronotum equal to basal width of elytra; body broadly oval and strongly convex ..... *Cybotus* Casey
- 6'. Basal width of pronotum less than basal width of elytra; body elongate and subdepressed ..... *Mecysmus* Horn
- 7 (1'). Prothorax densely fimbriate laterally ..... 8
- 7'. Prothorax not fimbriate laterally .... 9
- 8 (7). Protibiae narrow; body narrow and parallel ..... *Conibiosoma* Casey
- 8'. Protibiae broad; body stout and oblong-oval ..... *Notibius* LeConte
- 9 (7'). Elytra sulcate ..... 10
- 9'. Elytra not sulcate .... *Conibius* LeConte
- 10 (9'). Elytral intervals acutely ribbed ..... *Tonibiastes* Casey
- 10'. Elytral intervals convex ..... 11
- 11 (10'). Last three antennal segments abruptly clubbed ..... *Nocibiotes* Casey
- 11'. Last three antennal segments freely differentiated ..... *Tonibius* Casey

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