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The genus *Canidia* Thomson, 1857 (Coleoptera: Cerambycidae, Lamiinae, Acanthocinini)

JAMES E. WAPPES[1] & STEVEN W. LINGAFELTER[2]

[1] American Coleoptera Museum, 179 Fall Creek, Bulverde, TX 78163 U. S. A.
beetle@wireweb.net
[2] Systematic Entomology Lab, Plant Sciences Institute, Agriculture Research Service, USDA, National Museum of Natural History, Smithsonian Institution, MRC-168, Washington, DC 20013-7012 U. S. A.
slingafe@sel.barc.usda.gov

Abstract

The lamiine genus *Canidia* Thomson is redefined with *Canidiopsis* Dillon and *Pseudocanidia* Dillon as new synonyms. Three new species from Mexico are described and illustrated: *Canidia chemsaki*, *C. giesberti*, and *C. turnbowi*. The following new synonymies are proposed: *Canidiopsis similis* Dillon, 1955 and *Canidiopsis hebes* Dillon, 1955 = *Canidia mexicana* Thomson, 1860; *Pseudocanidia cuernavacae* Dillon, 1955 = *Dectes spinicornis* Bates, 1881; and *Dectes* (*Canidia*) *balteata* var. *inapicalis* Tippmann, 1960 = *Dectes balteatus* Lacordaire, 1872. A key to the eight species and one subspecies is presented.

Key words: Insecta, Coleoptera, Cerambycidae, Lamiinae, Acanthocinini, *Canidia*, *Dectes*, *Canidiopsis*, *Pseudocanidia*, new species, key

Resumen: Se redefine el género *Canidia* Thomson con *Canidiopsis* Dillon y *Pseudocanidia* Dillon como sinónimos nuevos. Describimos e ilustramos tres especies nuevas de México: *Canidia chemsaki*, *C. giesberti* y *C. turnbowi*. Se proponen los siguientes sinónimos nuevos: *Canidiopsis similis* Dillon, 1955 y *Canidiopsis hebes* Dillon 1955 = *Canidia mexicana* Thomson, 1860; *Pseudocanidia cuernavacae* Dillon, 1955 = *Dectes spinicornis* Bates, 1881; y *Dectes* (*Canidia*) *balteata inapicalis* Tippmann, 1960 = *Dectes balteatus* Lacordaire, 1872. Se incluye una clave para separar las ocho especies y una subespecie.

Palabras clave: Insecta, Coleoptera, Cerambycidae, Lamiinae, Acanthocinini, *Canidia*, *Dectes*, *Canidiopsis*, *Pseudocanidia*, especies nuevas, clave

Introduction

The genus *Canidia* Thomson as here redefined contains eight species and one subspecies including those described or designated by Dillon (1955, 1956) as belonging to

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Pseudocanidia Dillon and *Canidiopsis* Dillon. Most species have limited distributions in central and southern Mexico. The subspecies *C. cincticornis balteata* (Lacordaire) is the taxon with the widest distribution, occurring from southern Mexico to Colombia. The closely related genus *Dectes* LeConte, containing three species, occurs in the United States and Mexico. Both *Canidia* and *Dectes* are known to breed in stems of herbaceous plants, and some are agriculturally significant, attacking sunflower (*Helianthus annuus* Linnaeus), soybean (*Glycine max* Linnaeus), and ragweed (*Ambrosia artemisiifolia* Linnaeus) (Hatchett et al., 1975; Piper, 1978; Linsley and Chemsak, 1995).

Materials and Methods

The following institutional and private collections (with acronyms used in this paper) were consulted in this study:

AMNH — American Museum of Natural History (New York City, New York, USA)
BMNH — The Natural History Museum (London, England)
CASC — California Academy of Sciences (San Francisco, California, USA)
EMEC — Essig Museum of Entomology (Berkeley, California, USA)
CNCI — Canadian National Collection (Ottawa, Ontario, Canada)
CUIC — Cornell University Insect Collection (Ithaca, New York, USA)
FHPC — Frank Hovore Private Collection (Santa Clarita, California, USA)
GNPC — Gayle Nelson Private Collection (Blue Springs, Missouri, USA)
HHPC — Henry Howden Private Collection (Ottawa, Ontario, Canada)
JCPC — Jim Cope Private Collection (San Jose, California, USA)
JEWC — James E. Wappes Private Collection (Bulverde, Texas, USA)
RTPC — Robert H. Turnbow, Jr. Private Collection (Ft. Rucker, Alabama, USA)
TAMU — Texas A&M University Insect Collection (College Station, Texas, USA)
UNAM — Universidad Nacional Autónoma de México (Chamela, Jalisco, México)
USNM — National Museum of Natural History, Smithsonian Institution (Washington, DC, USA)

Holotypes are deposited in UNAM and EMEC, allotypes are deposited in USNM, and paratypes are distributed among various collections as noted in each species account. Over 600 specimens were examined in this study. Distribution maps (Map 1, Map 2) depict the ranges of all species, based on the specimens examined. Habitus figures (Figs. 1–3) show the facies of each species. Various morphological structures and diagnostic features are presented (Figs. 4–9). Species treatments are presented in alphabetical order. Full descriptions are presented for the three new species and diagnoses are presented for all species and subspecies. Label data is semi-verbatim, and thus is not necessarily consistent in formatting (e.g., date format).

Canidia Thomson, 1857: 193; Thomson, 1860: 7, 14; Lacordaire, 1872: 774; Bates, 1881: 409; Dillon 1955: 146; Dillon 1956: 105; Gilmour 1965: 581; Monné and Giesbert, 1993: 242; Monné and Giesbert, 1995; Monné and Hovore, 2004.
Type species: *Canidia cincticornis* Thomson, 1857, by monotypy.

Canidiopsis Dillon, 1955: 179, Type species: *Canidia mexicana* Thomson, 1860, by original designation. **New synonymy**.

Pseudocanidia Dillon, 1955: 176, Type species: *Pseudocanidia cuernavacae* Dillon, 1955, by original designation. **New synonymy**.

Form moderately small, subcylindrical to cylindrical. Head impunctate, strongly convex, median line extending length of front onto vertex, front narrowed below eyes, mandibles small, feebly arcuate; genae at least subequal to lower eye lobes, eyes finely faceted, upper lobes small, widely separated; antennal tubercles prominent, divergent; antennae slender, eleven-segmented, longer than body in both sexes, scape elongate, extending to or beyond pronotal tubercles, with a distinct apical process, third segment equal to or slightly longer than scape, remaining segments gradually decreasing in length. Pronotum subcylindrical, wider across tubercles than long, sides acutely spined before basal impression; base shallowly to moderately impressed; disk convex, with or without low calluses, surface finely to densely punctate; prosternum narrow, apex expanded to close coxal cavities behind; mesosternum with intercoxal process 2–3 times width of narrowest point of prosternal process; episternum narrow, subparallel. Elytra 2–3 times as long as broad, sides subparallel to slightly tapering; apices obliquely truncate to emarginate; pubescence dense, appressed, longer suberect setae scattered. Most species with a variably developed costal crest at base, accented with longer setae. Legs with femora clavate; tibiae slightly arcuate; tibial spurs short; tarsi with first segment longest; claws simple.

Remarks: This genus is characterized by the densely pubescent cylindrical body form, rounded pronotum armed laterally with acute spines, and well developed apical process on the antennal scape. *Dectes* is closely related to *Canidia* but differs primarily by the structure of the prosternal process which is very narrow, and not expanded at the apex to close the procoxal cavities, by the lack of an apical process on the scape, and by the lack of a basal elytral crest which is present in most species of *Canidia*.

Canidia canescens (Dillon), New combination

Figs. 3c, 4d, 5d, 6a,d, 7d, 8, 9d; Map 2

Canidiopsis canescens Dillon, 1955: 184; Gilmour, 1965: 581; Monné and Giesbert, 1993: 243; Monné and Giesbert, 1995; Monné and Hovore, 2004. Type locality: Nayarit, Mexico, 3 mi S Tepic.

Dectes mexicanus, "form a", Bates, 1881: 174.

Specimens examined: 50, including the holotype and seven paratypes. Found in west-central Mexico (Map 2).

Remarks: Recognizable by the uniform gray pubescence, sparsely punctate pronotal disk, and geographical distribution. *Canidia giesberti*, new species, is similar in general appearance but is separable from *C. canescens* by the weakly carinate to rounded form of the scape and its apical process, as well as its more southern distribution.

Canidia chemsaki Wappes and Lingafelter, New species

Figs. 1c, 2c, 4h, 5i, 7i, 9i; Map 1

Type Material: Holotype male (EMEC), San Jeronimo, Volcan Tacana, Chiapas, MEXICO, VIII-10-70. Allotype female (EMEC), Chiapas, Mex., 12 mi. N. of Tuxtla Gutierrez VIII-11-52, (C. D. MacNeill). Fifty-six paratypes from Mexico: 1 male, same location as holotype, IX-19-70; 3 males, Chiapas, San Jeronimo, 600 m, IX-1-9-75; 1 female, same locality, VII-24-1973 (E. C. Welling); 1 male, same locality, VIII-11-16-75; 1 female, Chiapas, Jnct. Rts. 190 & 195, VI-11-1969 (J. M. Campbell); 1 female, Chiapas, 20-25 mi N Huixtla, 300', 4 June 1969 (H. J. Teskey); 1 female, Candelaria, Loxicha, Oaxaca, V-27-85; 1 female, same locality, VI-26-85; 1 female, same locality, VII-21-85; 1 male, same locality, VII-29-85; 1 male, same locality, IX-16-85; 1 female, same locality, IX-6-85; 1 female, same locality, IX-10-85; 1 female, same locality, IX-1-85; 1 female, same locality, VI-22-83; 2 males, Chiapas, 35 km S San Cristobal, Sept 28, 1986 (J. E. Wappes); 1 male, Comitan, Chiapas, (D. H. Janzen); 1 female, Jnct. Rts. 190 & 195, Chiapas., VI-11-1969; 2 males, Chiapas, Parque Nacional El Aquacero, 27 Sept., 1986 and 3 Oct. 1986 (R. H. Turnbow); 1 female, Chis., 20-25 mi. N. Huiptla, 3000', 4 June 1969 (H. J. Teskey); 1 female, Chiapas, 4 mi NW of Pueblo Nuevo River Bajada, VII-30-1965 (G. H. Nelson); 6 females and 5 males, Chiapas, El Chorreodero Cyn., 1 Oct., 1989 (F. T. Hovore); 1 female, Chiapas, 11 km S Bochil, 30 Sept., 1989 (F. T. Hovore); 1 male, Chiapas, Sumidero Cyn., 27 Sept., 1989 (F. T. Hovore); 9 females and 4 males, Chiapas, El Chorreodero Cyn., 1 Oct. 1989 (F. T. Hovore); 3 females, Chiapas, 12 km N Berriozabal "Pozo la Pera", T. Luz 917 msnm, 19-21-VII-2001 (V. H. Toledo, A. M. Corona y A. Rodriquez); 1 sex?, Oaxaca, km 178, Puerto Escondido Rd., R. Bandar, VII-65; 1 sex?, Oaxaca, Jamaica Jct., km 183, Puerto Escondido Rd., R. Bandar, Vii-66. Paratypes deposited in EMEC, CNCI, USNM, UNAM, FHPC, GNPC, RTPC, JCPC, JEWC.

Male. Form moderately robust, subcylindrical, weakly tapering apically. **Integument** black to piceous, densely clothed with short, fine, white and brown, mottled, recumbent pubescence; a few longer, erect setae around moderately pronounced basal elytral crests; pronotum without pubescent fasciae or vittae; elytra usually with distinct inverted V-shaped white fascia post-medially, and a sinuate white fascia extending around outside and posterior of basal elytral crest and posteriorly along suture. **Head** with front convex; median line moderately impressed, extending to occiput, widened at the base of the anten-

nal tubercles in a small, flattened diamond to triangularly shaped denuded area; frons, area behind and between the eyes, tubercles, dorsal-lateral areas of the gena and basal margins covered with gray pubescence; upper lobes of the eyes separated by width of scutellum base, lower lobes elongate-ovate and distinctly longer than the height of the gena directly below them. **Antennae** slender, surpassing elytra by at least 5 segments, moderately clothed with short, mottled, gray pubescence, all segments annulate at apical one-third to one-fourth, third segment approximately as long as scape, remaining segments successively decreasing in length through ninth which is subequal to tenth and eleventh; scape elongate, distinctly mottled, extending nearly to posterior pronotal margin, feebly carinate, cylindrical, widest at apical two-thirds, impressed below on apical one-fourth to one-third before apical process, apical process asymmetrical, with one lobe distinctly larger than the other, impressed behind. **Pronotum** cylindrical, width across tubercles approximately equal to or greater than dorsal length, slightly narrower posterior to lateral tubercles than anteriorly, moderately punctate above and on sides, punctures separated by 1–3 times their diameter, as large as those at base of elytra; coated with gray pubescence not arranged in vittae or other pattern; typically with glabrous, swollen region at middle of disk and with divided, transverse band across anterior one-third. Sides armed with moderate, acute tubercles, post-mediolaterally positioned, tubercles slightly retrorse. **Scutellum** of moderate size, broader than long, narrowly rounded at apex, impunctate, clothed with mottled gray and brown pubescence. **Elytra** broad at base, weakly tapering apically; together about 2.6 times as long as greatest width (at humeri), covered with mottled brown and white pubescence, usually with distinct pattern consisting of white inverted post-medial V-shaped fascia and a sinuate white fascia extending around outside of and behind basal elytral crest and down suture; coarsely punctate, punctures approximately spaced and sized as in pronotum; punctures deeper at base, progressively smaller distally, but present to apex; moderately developed basal crests surrounded by sparse, longer setae present; apices truncate. **Underside** densely mottled white and brown pubescence; prosternal process narrow, broadly expanded apically, at narrowest point one-fifth as wide as procoxal cavities; procoxal cavities closed behind; mesosternal process simple, 2–3 times as wide as prosternal process, over one-third width of mesocoxal cavities. **Legs** elongate, clavate; finely pubescent, bearing dense coating of mottled (rarely indistinct) white and brown setae, with golden and denser pubescence more pronounced on apical one-third of tibiae and all tarsi. **Abdomen** densely pubescent, mottled white and brown obscuring surface; terminal segment distinctly notched medially at apex, over 1.5 times as broad as long. Length 10.5–11.2 mm, width 3.2–3.5 mm.

Female. Form similar to male; antennae surpassing elytral apices by about 4 segments; abdomen with terminal segment 1.5 times as broad as long, apical margin truncate and not indented. Length, 11.0–14.2 mm, width 3.8–4.5 mm.

Remarks: This species has a distinctive brown and pale gray to white elytral pattern that is clearly evident on all but the most worn specimens. This pattern is bolder than in

the similar *C. ochreostictica* (Dillon). In most examples the legs and antennae are mottled, however this is not evident in all specimens. Most specimens have a glabrous, swollen region at the middle of the disk and a divided, transverse swollen, glabrous band across the anterior one-third (lacking in *C. ochreostictica*). When viewed in cross section, both this species and *C. giesberti*, new species, have a triangular shaped, feebly-carinate scape with a large, broadly rounded apical process. Some specimens were taken on bark of *Cedrela*.

Etymology. This species is named after Dr. John A. Chemsak, in recognition of his many contributions to cerambycid taxonomy and for his enthusiastic encouragement of others to contribute to the science.

Canidia cincticornis balteata **(Lacordaire)**

Figs. 3b, 4b, 5b, 7a, 9b; Map 2

Dectes balteatus Lacordaire, 1872: 775; Bates, 1881: 174. Type locality: Mexico.
Canidia balteatus: Bates, 1885: 409.
Canidia cincticornis balteatus: Dillon, 1955: 149; Gilmour, 1965: 581; Monné and Giesbert, 1993: 243.
Dectes (*Canidia*) *balteata inapicalis* Tippmann, 1960: 190. Type locality: Colombia. **New synonymy**.
Canidia cincticornis inapicalis: Gilmour, 1965: 581; Monné and Giesbert, 1993: 243; Monné and Giesbert, 1995; Monné and Hovore, 2004.

Specimens examined: 47 including the holotype of *C. balteata inapicalis* Tippmann. Mexican in distribution (Map 2).

Remarks: The round, black macula on an otherwise gray dorsum, combined with the bidentate elytral apices, characterize this subspecies. Tippmann's *inapicalis* was based, in part, on specimens from Colombia which lack the black apical macula. However, throughout its range (Mexico to Colombia) individuals can be found with greatly reduced or absent apical spots. This is unlike the larger post-median spots which remain fairly constant in size and placement. None of the specimens examined lack the postmedian spots.

Canidia cincticornis cincticornis **Thomson**

Figs. 3a, 4a, 5a, 7b, 9a

Canidia cincticornis Thomson, 1857: 194; Thomson, 1860: 14; Bates, 1885: 409. Type locality: Costa Rica.
Dectes cincticornis: Lacordaire, 1872: 775; Bates, 1881: 173.
Canidia cincticornis cincticornis: Dillon, 1955: 148; Gilmour, 1965: 581; Monné and Giesbert, 1993: 242; Monné and Giesbert, 1995; Monné and Hovore, 2004.

Specimens examined: 14 from Costa Rica and Nicaragua.

Remarks: This subpecies is easily recognized by the solid black color, pronotal pubescence not obscuring the surface, heavily punctate upper surface, and bidentate elytral apices. Some specimens have a very vague, large, black macula in the same position as the nominate subspecies.

***Canidia giesberti* Wappes and Lingafelter, New species**
Figs. 1b, 2b, 4g, 5g, 7g, 9g; Map 1

Type Material: Holotype male (UNAM) and allotype female (USNM), MEXICO, Chiapas, Oaxaca border on Pan-Am Hwy., 800m, 9.VI.1990 (H. & A. Howden). Twenty paratypes from Mexico: 2 females, same data as holotype; 1 female and 1 male, Chiapas, Cinco Cerros, Km 30 on Hwy 190, 1500m, 8.VI.1989 (H. Howden); 1 male and 1 female, Chiapas, Cinco Cerros, 8-VI-89 (D. Thomas, H. Howden, B. Ratcliffe); 1 male, Chiapas, Cinco Cerros, 860m, 31.V.1990 (H. & A. Howden); 1 male and 1 female, Chiapas, 3 km W Rosando Salvavidas, X-15-1988 (J. E. Wappes); 2 females, Chiapas, 15 mi W Las Cruces, VII-27-52 (E. E. Gilbert, C. D. MacNeill); 1 female, Chiapas, 78 mi W Tuxtla Gutierrez, VII-27-52 (C. D. MacNeill); 1 male, Chiapas, Santa Isabel, VII-28-52 (C. D. MacNeill and E. E. Gilbert); 1 female, Oaxaca, 46 mi SE Oaxaca, VII-13-52 (E. E. Gilbert and C. D. MacNeill); 1 female, Oaxaca, 19 km SE Nejapa, Aug. 11, 1967, el 4000' (H. R. Burke and J. Hafernik); 1 male, Oaxaca, 19 mi S. Matias Romero, 10-15-VII-82 (J. Cope); 1 male, Oaxaca, 11.6 miles west of Jalapa del Marques, July 12, 1971, taken at light (Clark, Murray, Hart and Schaffner); 1 female, Oaxaca, La Ventosa, 72 mi. E. Oaxaca, VII-26-63 (J. Doyen); 1 male, Veracruz, Conejos, July 26, 1956 (Vincent D. Roth); 1 male, Oaxaca, Juquila Mixes, 4700', VII-1968 (W. S. Miller). Paratypes deposited in the EMEC, UNAM, CNCI, USNM, TAMU, JCPC, HHPC, JEWC.

Male. Form robust, subcylindrical, tapering apically. **Integument** black to piceous, densely clothed with short, fine, grayish recumbent pubescence, a few longer, erect setae along weakly pronounced basal elytral crests; pronotum and elytra without pubescent fasciae or vittae. **Head** with front convex; median line moderately impressed, extending to occiput, widened at the base of the antennal tubercles in a flattened diamond to triangularly shaped denuded area; frons, area behind and between the eyes, tubercles, dorso-lateral areas of the gena, and basal margins covered with gray pubescence; upper lobes of the eyes separated by width of scutellum base, lower lobes elongate-ovate and distinctly longer than the height of the gena directly below them. **Antennae** slender, surpassing elytra by at least 4 segments, moderately clothed with short, golden-gray pubescence, all segments annulate at apical one-half to one-third, third segment slightly longer than scape, fourth one-sixth longer than scape, fifth distinctly shorter than scape, sixth and seventh nearly equal in length, shorter than fifth, remaining segments subequal or slightly decreasing in length, eleventh the shortest (other than second); scape elongate, attaining or extending slightly beyond pronotal tubercles, feebly carinate, cylindrical, widest at apical

two-thirds, impressed below on apical one-fourth to one-third before apical process, apical process nearly symmetrical, evenly rounded, impressed behind. **Pronotum** cylindrical, width across tubercles approximately equal to dorsal length, slightly narrower posterior to lateral tubercles than anteriorly, moderately punctate above and on sides, punctures separated by 1–3 times their diameter, as large as those at base of elytra; coated with gray pubescence not arranged in vittae or other pattern. Sides armed with moderate, acute tubercles, postmediolaterally positioned, tubercles slightly retrorse. **Scutellum** large, broader than long, broadly truncate at apex, impunctate, clothed with gray pubescence. **Elytra** broad at base, distinctly tapering apically; together about 2.6 times as long as greatest width (at humeri), covered with gray pubescence, not arranged in patterns or vittae; coarsely punctate, punctures approximately spaced and sized as in pronotum; punctures coarser at base, progressively smaller distally with apical third impunctate; weakly developed basal crests lined with sparse, longer setae present; apices obliquely truncate. **Underside** densely gray pubescent; prosternal process narrow, broadly expanded apically, at narrowest point one-sixth as wide as procoxal cavities; procoxal cavities closed behind; mesosternal process simple, 2–3 times as wide as prosternal process, about one-third width of mesocoxal cavities. **Legs** elongate, clavate; finely pubescent, bearing dense coating of gray and golden hairs, more pronounced on apical one-third of tibiae and all tarsi. **Abdomen** densely pubescent, completely obscuring surface; terminal segment subtruncate, two times as broad as long with apical margin shallowly indented. Length 9.0–13.5 mm, width 2.8–4.4 mm.

Female. Form similar to male; antennae surpassing elytral apices by about 4 segments; abdomen with terminal segment 1.5 times as broad as long, apical margin truncate and not indented. Length 11.0–13.2 mm, width 3.9–4.5 mm.

Remarks: This species resembles *C. canescens* Dillon by the concolorous gray dorsal surface and annulate distal antennal segments. It differs by the weakly-carinate scape with the broadly rounded apical process.

Etymology: This species is named to honor Edmund F. Giesbert, a remarkable, self-taught cerambycid taxonomist who introduced the senior author to the excitement of collecting in the American tropics and with whom he shared many collecting adventures from the late 1970's until Giesbert's untimely death in 1999.

Canidia mexicana **Thomson**

Figs. 3d, 4e, 5e, 7e, 9e; Map 2

Canidia mexicana Thomson, 1860: 14. Type locality: Mexico.
Dectes mexicana: Bates, 1881: 174; Bates 1885: 408.
Canidiopsis mexicanus: Dillon, 1955: 180; Gilmour, 1965: 581; Monné and Giesbert 1993: 243; Monné and Giesbert, 1995; Monné and Hovore, 2004.
Canidiopsis similis Dillon, 1955: 182; Gilmour, 1965: 581; Monné and Giesbert, 1993: 243; Monné and Giesbert, 1995; Monné and Hovore, 2004. Type locality: Mexico, Morelos, Cuernavaca. **New synonymy**.

Canidiopsis hebes Dillon, 1955: 185; Gilmour, 1965: 581; Monné and Giesbert, 1993: 243; Monné and Giesbert, 1995; Monné and Hovore, 2004. Type locality: Mexico, Morelos, Cuernavaca. **New synonymy**.

Specimens examined: 227 including the holotype and seven paratypes of *Canidiopsis similis* Dillon and the holotype and one paratype of *C. hebes* Dillon. Occurs in central Mexico (Map 2).

Remarks: This species is most easily recognized by its multicolored vestiture and carinate scape with truncated apical process. Within populations, fully marked individuals (distinct inverted chevron elytral fasciae and pronotal vittae) are found along with poorly marked individuals (vague fasciae and indistinct pronotal vittae). Typically specimens have white speckling on the dorsal surface and discernible mottling on the scape and femora. Some specimens of the new species, *Canidia chemsaki*, have a similar general appearance but can be readily separated by the rounded process at the apex of the scape and the more southern distribution.

Note: One of the paratypes of *Canidiopsis hebes* Dillon from "Envir de Guadalajara, Estat. de Jalisco, M. Duquet, 1901" is assigned to *Canidia canescens* Dillon.

***Canidia ochreostictica* (Dillon), New combination**

Figs. 3f, 5h, 6b, 7h, 9h; Map 1

Pseudocanidia ochreosticticus Dillon, 1956: 105; Gilmour, 1965: 581; Monné and Giesbert, 1993: 261; Monné and Giesbert, 1995; Monné and Hovore, 2004. Type locality: Tancitaro, Michoacán, Mexico.

Specimens examined: 17, including the holotype. Known from a small area in west-central Mexico (Map 1).

Remarks: Among the species with a rounded apical process on the scape, *C. ochreosticticus* is distinctive in the relatively shorter and narrower form of the pronotum. The typically bright reddish-brown integument is also unique, although a few specimens assignable to this species are darker. Well-marked specimens have indistinct, pale, oblique lines at the basal one-third and near the middle of each elytron, but generally indistinct in comparison to *C. chemsaki*. While similar to *C. chemsaki*, this species also differs in lacking the transverse calli on the apical third of the pronotum. These characters, when combined with the restricted distribution, will clearly distinguish *C. ochreostictica.*

***Canidia spinicornis* (Bates)**

Figs. 3e, 4f, 5f, 6c,e, 7f, 9f; Map 1

Dectes spinicornis Bates, 1881: 174; Dillon, 1955: 186. Type locality: Mexico.

Canidia spinicornis Bates, 1885: 409; Gilmour, 1965: 581; Monné and Giesbert, 1993: 243; Monné and Giesbert, 1995; Monné and Hovore, 2004.

Pseudocanidia cuernavacae Dillon, 1955: 177; Gilmour, 1965: 581; Monné and Giesbert, 1993: 261; Monné and Giesbert, 1995; Monné and Hovore, 2004. Type locality: Mexico, Morelos, Cuernavaca. **New synonymy**.

Specimens examined: 188 including holotypes of *Canidia spinicornis* Bates and *Pseudocanidia cuernavacae* Dillon, and 3 paratypes of the latter. Found in south-central Mexico (Map 1).

Remarks: Among the *Canidia* species having a rounded apical process on the scape, *C. spinicornis* is easily recognizable by the parallel-sided pronotum that is finely and densely punctate with the punctures being much smaller than those at the base of the elytra, the contrasting white and brown vittate pattern of the pronotum, and the mottled appendages. Although Dillon noted the existence of Bates' *spinicornis*, he misinterpreted the original description and did not include this species in his revision.

Canidia turnbowi Wappes and Lingafelter, New species

Figs. 1a, 2a, 4c, 5c, 7c, 9c; Map 2

Type Material: Holotype male (UNAM), MEXICO, Guerrero, Hwy 134, 73 km NE Jct. 200, V-15, 16-85 (J. E. Wappes). Allotype female (USNM), Guerrero, Hwy 134, 64.1 km NE Jct 200, 15 July 1985 (R. Turnbow). Five paratypes from Mexico: 3 males, Guerrero, Hwy 134, 67 km NE Jct 200, VII-14-85 (J. E. Wappes); 2 males, Guerrero, 55 km NE Villa de Zaragoza, 16 July 1985 (R. H. Turnbow). Paratypes deposited in RTPC and JEWC.

Male. Form elongate, slender, subcylindrical. **Integument** black to piceous, ventral aspect, legs and antennae moderately to densely clothed with short, fine, grayish recumbent pubescence, pronotum and elytra striped with slightly coarser recumbent pubescence. **Head** with front convex; median line moderately impressed, ending caudally at the base of the antennal tubercles in a flattened diamond to triangularly shaped denuded area; frons, area behind and between the eyes, tubercles, dorsal-lateral areas of the gena, and basal margins covered with hoary pubescence; upper lobes of the eyes separated by 3/5 distance between the tubercle apices, lower lobes elongate-ovate, approximately the height of the gena directly below them. **Antennae** slender, surpassing elytra by 5–6 segments, moderately clothed with short, hoary pubescence, pubescence becoming longer and denser on distal segments, scape and second segment black, segments 3–6 dark reddish, annulate at apex, remaining segments black, non-annulate, third segment one-third longer than scape, fourth one-sixth longer than scape, fifth subequal to scape, sixth and seventh nearly equal in length, shorter than fifth, remaining segments gradually decreasing in length, eleventh the shortest; scape elongate, distinctly surpassing pronotal tubercles, non-carinate, cylindrical, widest near apices, slightly impressed above on distal one-third to one-fifth, below

more deeply impressed on distal one-fourth before apical process; apical process elongated, rounded in front, excavated behind, acutely rounded at apices, slightly retro-arcuate. **Pronotum** cylindrical, width across tubercles equal to dorsal length, distinctly narrowed behind lateral tubercles, narrowly impressed behind apical margin, moderately punctate above and on sides, punctures separated by 1–3 times their diameter, smaller than those at base of elytra; dorsal and lateral hoary pubescence creating a vittate pattern, medially a narrow band of hoary pubescence is bordered by slightly wider black integumental bands; integumental bands sparsely clothed with minute, golden pubescence which partially obscures the surface, bordered laterally by a dense band of gray pubescence near base of lateral tubercles, remaining lateral area black; sides armed with moderately small, acute tubercles at basal third, tubercles slightly oblique and retrorse. **Scutellum** small, black, as broad as long, narrowly rounded, impunctate, sparsely clothed with minute, gray pubescence. **Elytra** together slightly less than three times as long as wide at humeri, gradually narrowed apically; covered with hoary pubescence alternating with integumental stripes creating vittae; suture narrowly black, each elytron with two, nearly parallel, elongate, black vittae beginning near the base and ending at apical sixth to seventh, converging near apices, sides with a broader linear black vitta of similar length, lateral margins and remainder of elytra covered with dense gray pubescence; each elytron with three to four rows of long, erect, slightly backward projecting, black, setae; elytra moderately punctate, punctures coarser at base, progressively smaller distally with apical fourth impunctate, black integumental stripes at sides coarsely punctate for most of their length; apices shallowly emarginate, lateral margins slightly produced. **Underside** densely pubescent except for the metepisternum; prosternal process at narrowest point one-fifth as wide as procoxal cavities, procoxal cavities closed behind; mesosternal process simple, 2-3 times as wide as prosternal process. **Legs** elongate, moderately clavate; finely pubescent, bearing stout, golden hairs on apical one-third of tibiae. **Abdomen** densely pubescent, completely obscuring surface; terminal segment subtruncate, two times as broad as long with apical margin shallowly notched. Length 7.5–8.5 mm, width 1.8–2.4 mm.

Female. Form similar to male; antennae surpassing elytral apices by 4–5 segments; abdomen with terminal segment 1.5 times as broad as long, apical margin slightly curved to straight. Length 8.2 mm, width 2.3 mm.

Remarks: This distinctive species is easily recognized by the narrow form and vittate pattern of the pronotum and elytra and the abundance of long, erect hairs over the elytra. All specimens were taken beating large, herbaceous plants growing along the roadside at an altitude above 7000 feet. In the area of the type locality, Highway 134 is a steep winding road with numerous switchbacks. A somewhat unique moist habitat is created wherever these switchbacks are deeply set into the mountain. These areas catch and hold much of the rainfall runoff from the above adjacent slopes and support host plant abundance.

Etymology: This species is named after Robert H. Turnbow, Jr., tireless collector and ardent Coleoptera student who discovered part of the type series.

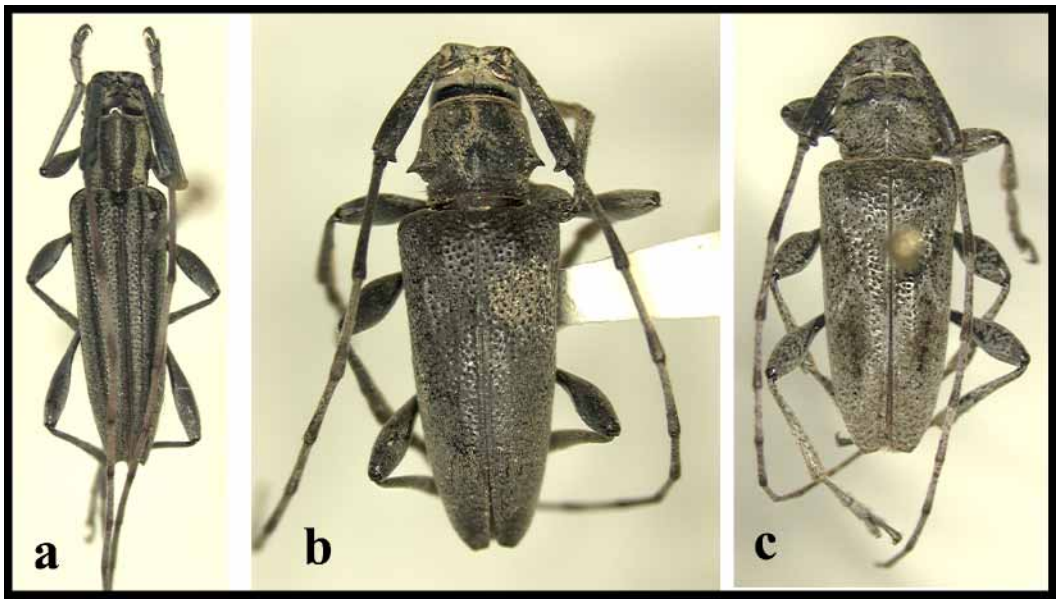


FIGURE 1. New species of *Canidia*, dorsal view: a, *C. turnbowi* Wappes and Lingafelter, (holotype, male); b, *C. giesberti* Wappes and Lingafelter, (holotype, male); c, *C. chemsaki* Wappes and Lingafelter, (holotype, male).

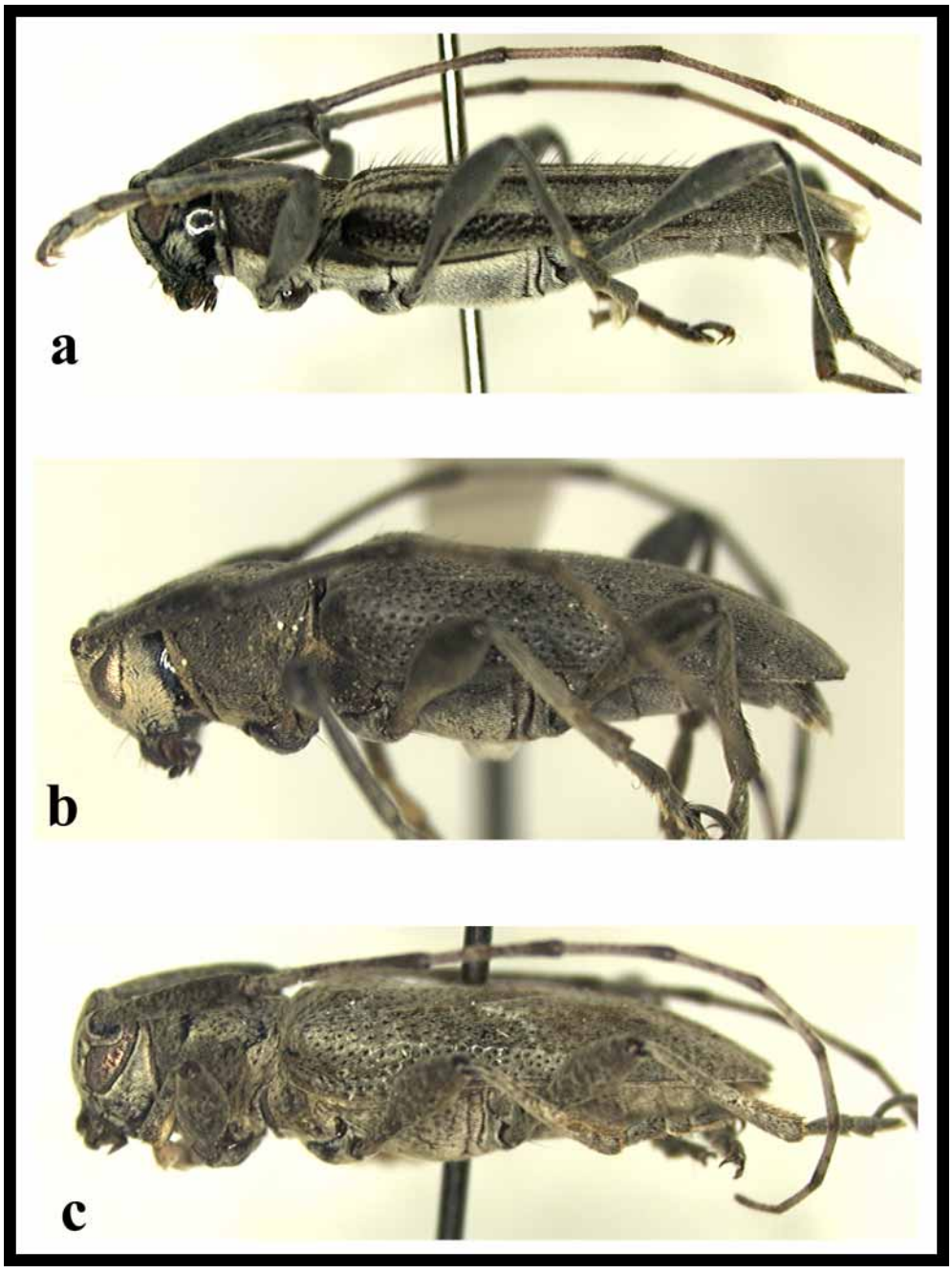


FIGURE 2. New species of *Canidia*, lateral view: a, *C. turnbowi* Wappes and Lingafelter, (holotype, male); b, *C. giesberti* Wappes and Lingafelter, (holotype, male); c, *C. chemsaki* Wappes and Lingafelter, (holotype, male).

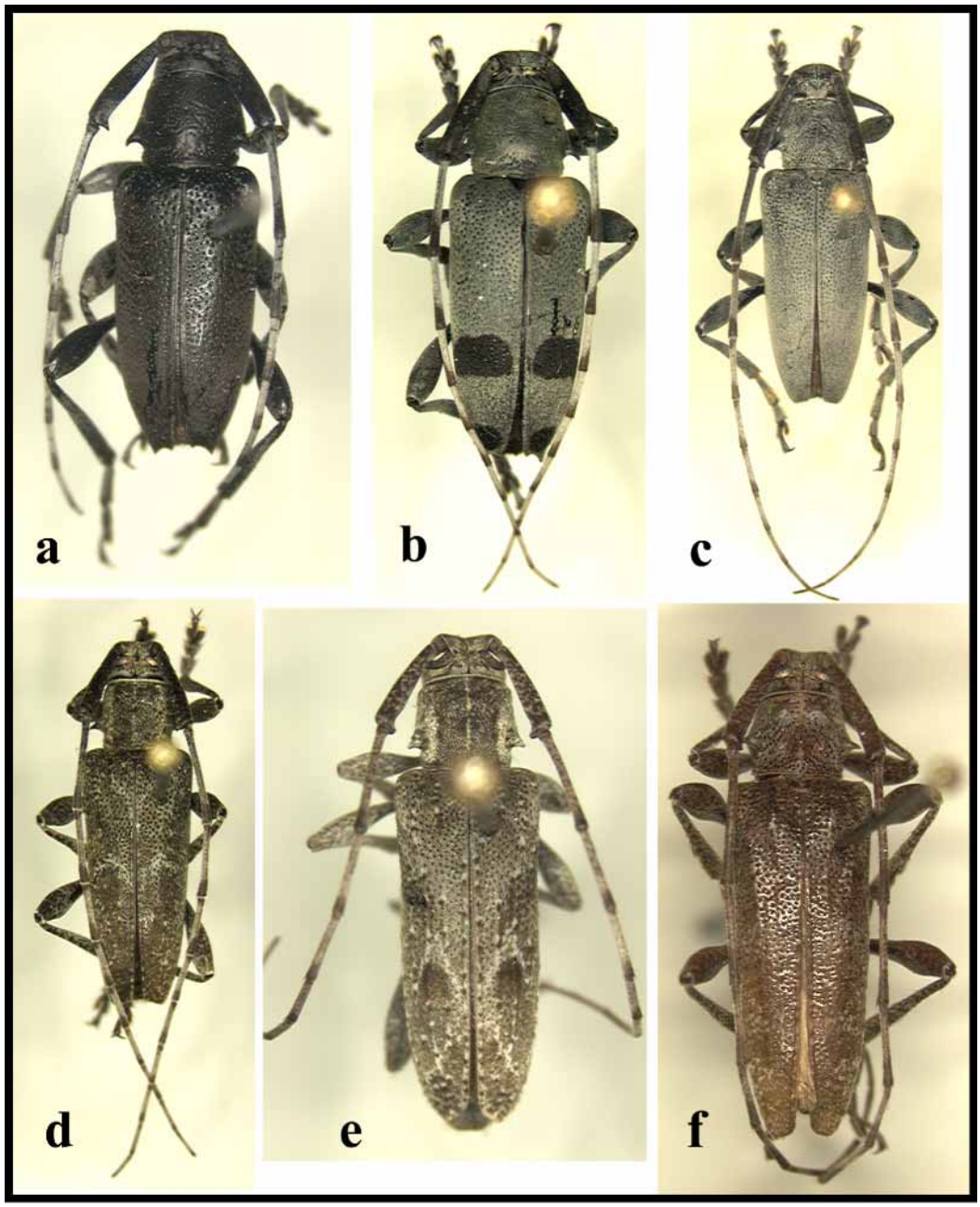


FIGURE 3. Species of *Canidia*: a, *C. cincticornis cincticornis* Thomson; b, *C. cincticornis balteata* (Lacordaire); c, *C. canescens* (Dillon); d, *C. mexicana* Thomson; e, *C. spinicornis* (Bates); f, *C. ochreostictica* (Dillon).

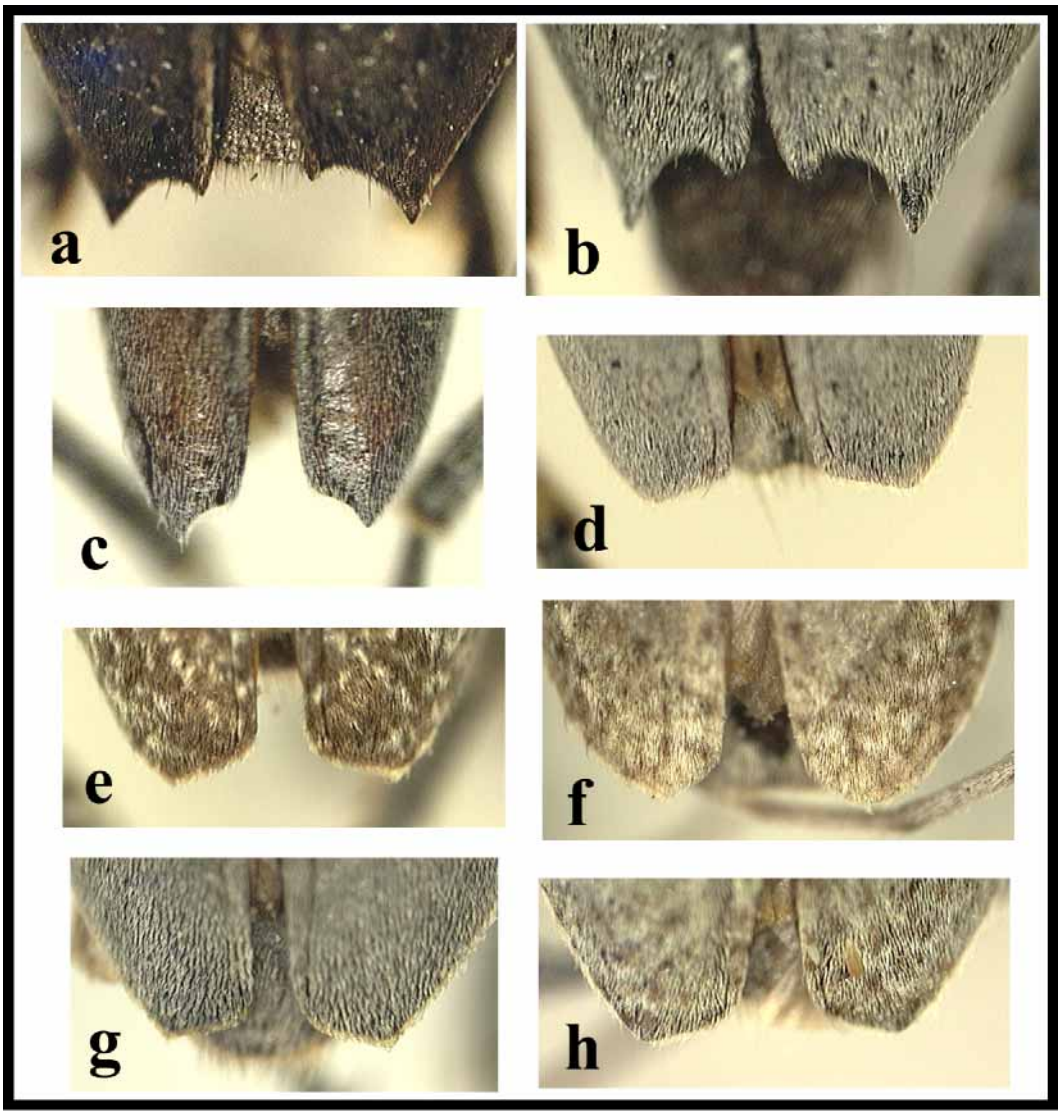


FIGURE 4. Elytral apices of *Canidia* species: a, *C. cincticornis cincticornis* Thomson; b, *C. cincticornis balteata* (Lacordaire); c, *C. turnbowi* Wappes and Lingafelter; d, *C. canescens* (Dillon); e, *C. mexicana* Thomson; f, *C. spinicornis* (Bates); g, *C. giesberti* Wappes and Lingafelter; h, *C. chemsaki* Wappes and Lingafelter.

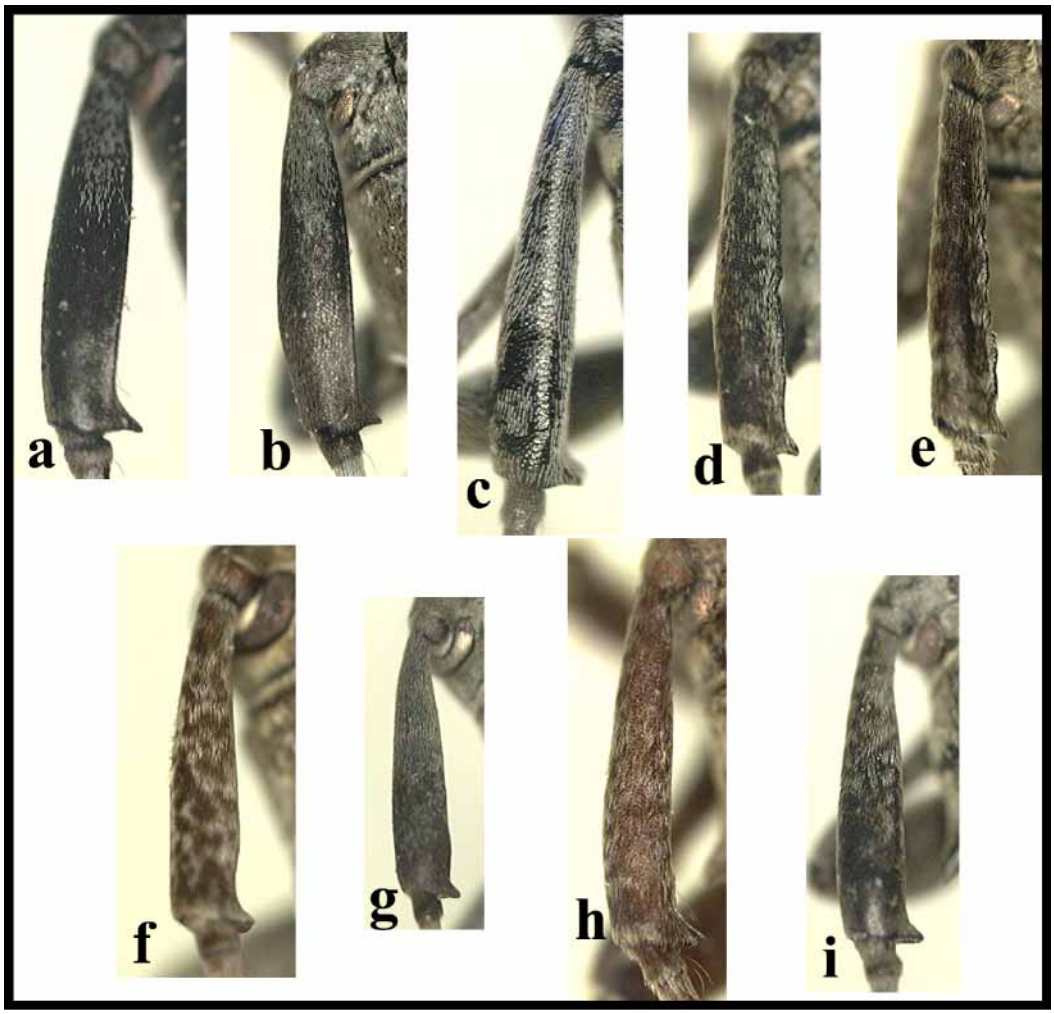


FIGURE 5. Antennal scapes of *Canidia* species: a, *C. cincticornis cincticornis* Thomson; b, *C. cincticornis balteata* (Lacordaire); c, *C. turnbowi* Wappes and Lingafelter; d, *C. canescens* (Dillon); e, *C. mexicana* Thomson; f, *C. spinicornis* (Bates); g, *C. giesberti* Wappes and Lingafelter; h, *C. ochreostictica* (Dillon); i, *C. chemsaki* Wappes and Lingafelter.

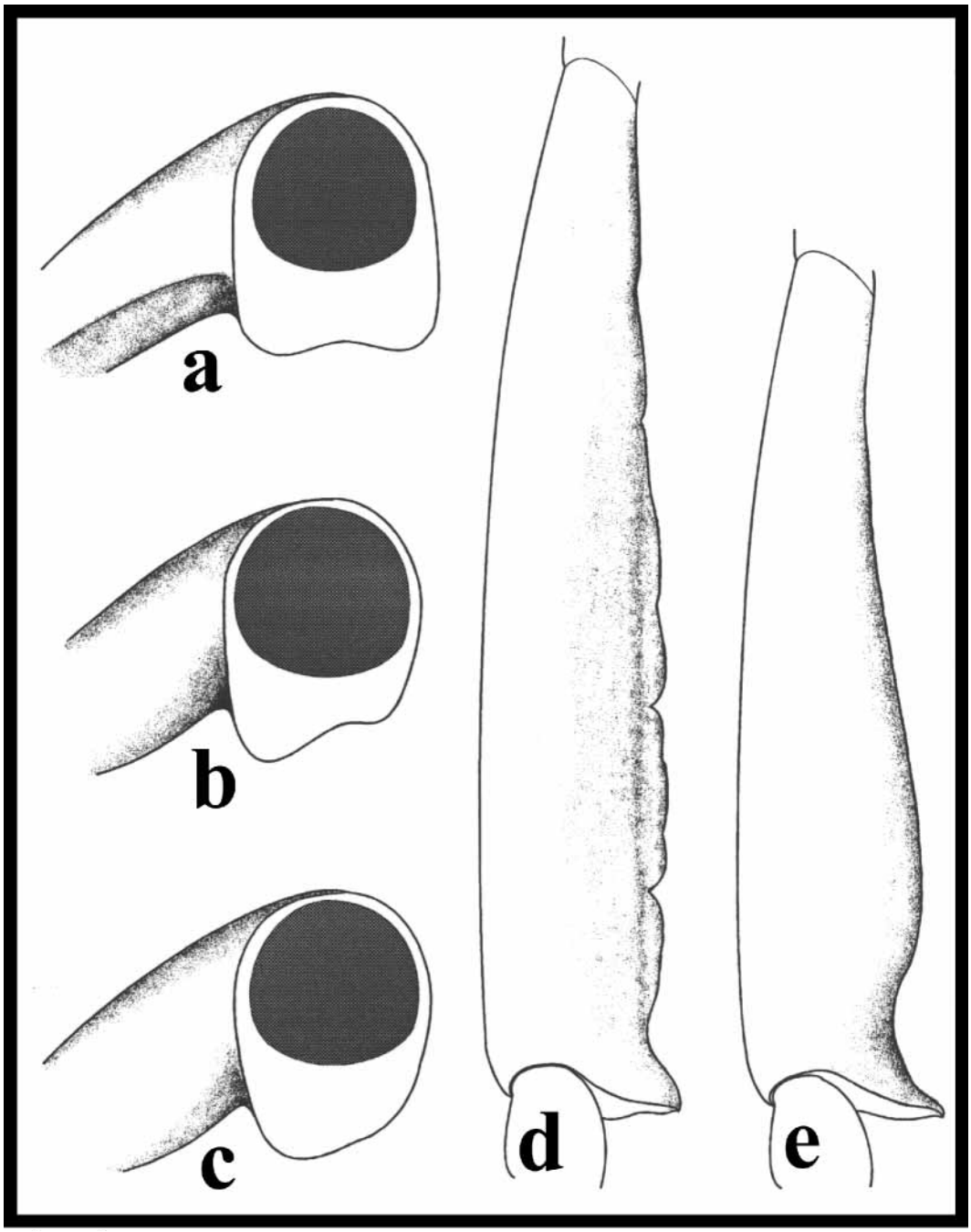


FIGURE 6. Illustration of scape and apical process for *Canidia* species: a, *C. canescens* (Dillon); b, *C. ochreostictica* (Dillon); c, *C. spinicornis* (Bates); d, *C. canescens* (Dillon); e, *C. spinicornis* (Bates).

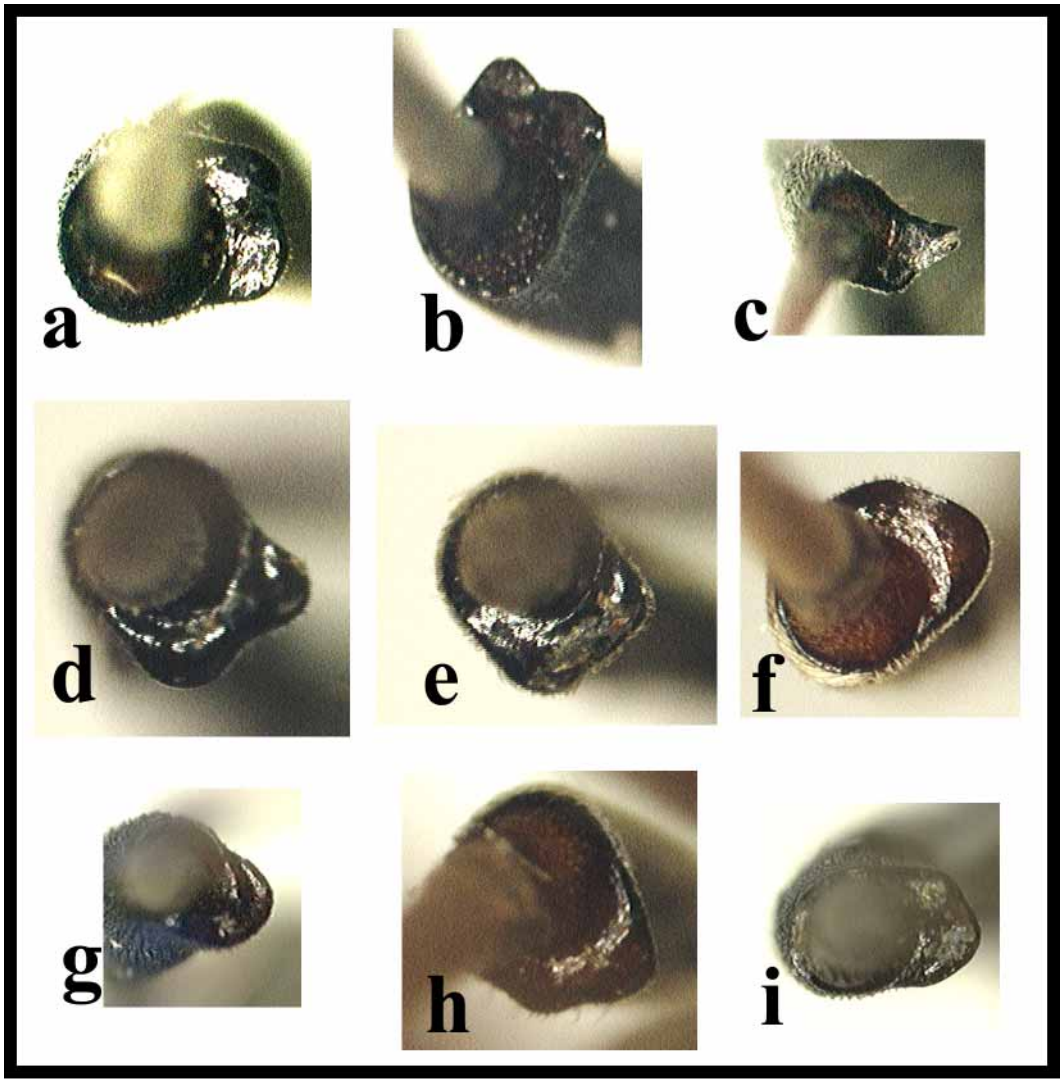


FIGURE 7. Apical scape processes of *Canidia* species: a, *C. cincticornis balteata* (Lacordaire); b, *C. cincticornis cincticornis* Thomson; c, *C. turnbowi* Wappes and Lingafelter; d, *C. canescens* (Dillon); e, *C. mexicana* Thomson; f, *C. spinicornis* (Bates); g, *C. giesberti* Wappes and Lingafelter; h, *C. ochreostictica* (Dillon); i, *C. chemsaki* Wappes and Lingafelter.

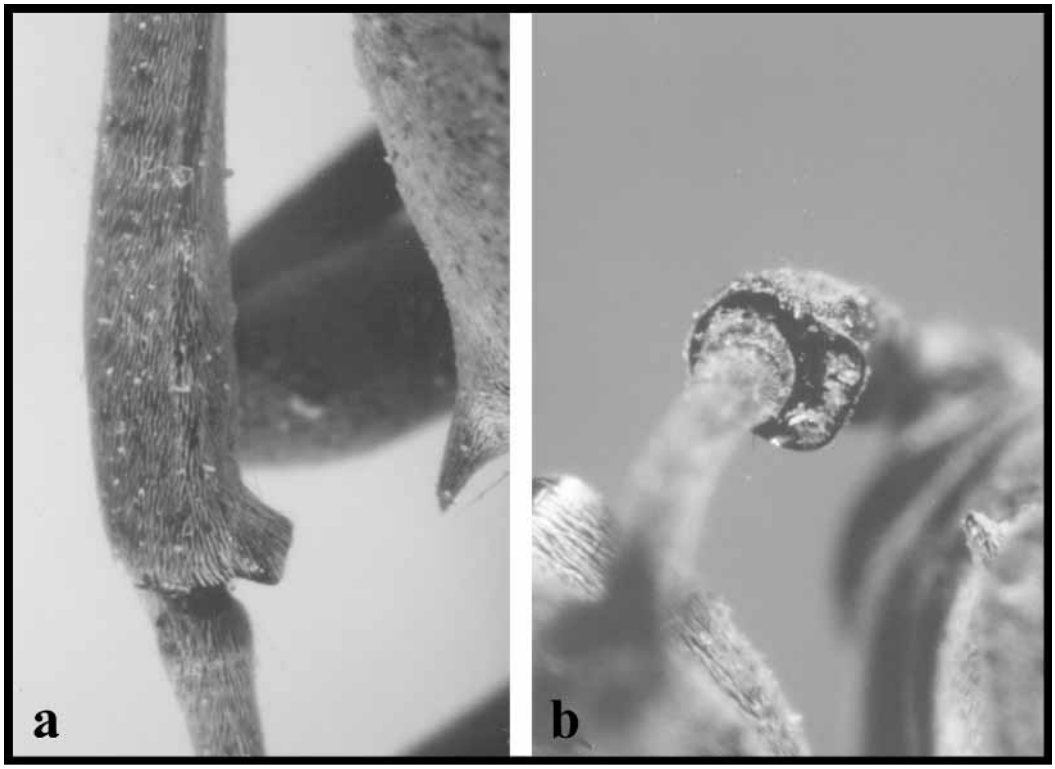


FIGURE 8. Scape (a) and apical process (b) of holotype of *Canidia canescens* (Dillon).

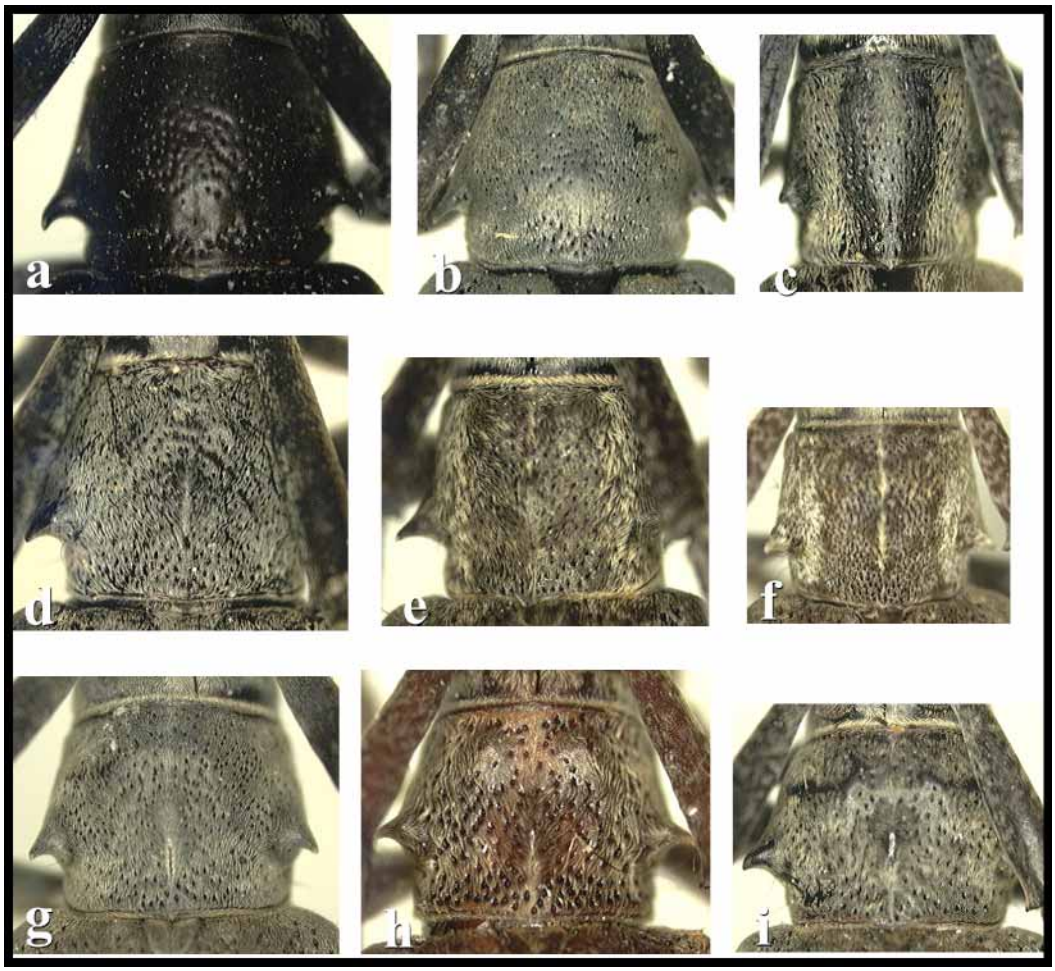
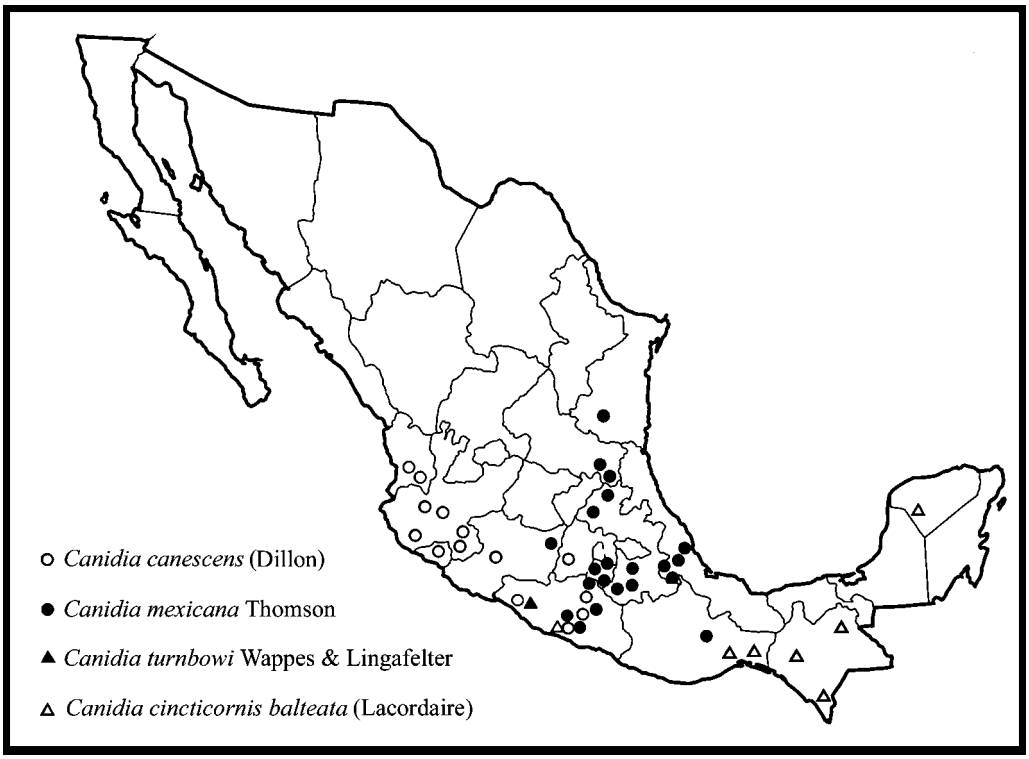


FIGURE 9. Pronota of *Canidia* species: a, *C. cincticornis cincticornis* Thomson; b, *C. cincticornis balteata* (Lacordaire); c, *C. turnbowi* Wappes and Lingafelter; d, *C. canescens* (Dillon); e, *C. mexicana* Thomson; f, *C. spinicornis* (Bates); g, *C. giesberti* Wappes and Lingafelter; h, *C. ochreosticta* (Dillon); i, *C. chemsaki* Wappes and Lingafelter.

MAP 1. Distribution of *Canidia* species in Mexico and Central America: solid circles, *C. spinicornis* (Bates); empty triangles, *C. ochreostictica* (Dillon); solid triangles, *C. chemsaki* Wappes and Lingafelter; empty circles, *C. giesberti* Wappes and Lingafelter.



MAP 2. Distribution of *Canidia* species in Mexico and Central America: solid circles, *C. mexicana* (Thomson); empty triangles, *C. cincticornis balteata* (Lacordaire); solid triangles, *C. turnbowi* Wappes and Lingafelter; empty circles, *C. canescens* Dillon.

Key to the species of *Canidia* Thomson

1. Pronotum and each elytron with three narrow, longitudinal vittae of gray, appressed pubescence, separated by narrow, nearly glabrous black regions (Figs. 1a, 9c). Length 7.5–8.5 mm. Guerrero, Mexico ..... ***turnbowi*, new species**

— Pronotum and elytron not as above, without aformentioned vittae, nearly completely covered in pubescence, without longitudinal narrow vittae of gray pubescence separated by nearly glabrous, narrow, black regions 2

2(1). Elytral apices bidentate (Fig. 4a,b); eyes not margined with dense, uniformly oriented pubescence..... 3

— Elytral apices truncate or rounded (Fig. 4d–h); eyes of most specimens (except some *C. giesberti*) distinctly margined with denser, uniformly oriented pubescence 4

3(2). Dorsal surface black; pubescence of pronotum not obscuring surface; no distinct elytral maculae present (Figs. 3a, 9a). Length 6–12 mm. Costa Rica and Nicaragua .... ***cincticornis cincticornis* Thomson**

— Dorsal surface gray; pubescence of pronotum obscuring most of surface; elytra with two to four post-median black maculae (Fig. 3b, 9b). Length 8–12 mm. Southern Mexico to Colombia..... ***cincticornis balteata* (Lacordaire)**

4(2). Inner margin of scape strongly bicarinate, dorsal carina distinctly, irregularly sinuate (Figs. 5d,e, 6d); apical process of scape truncate, parallel-sided when viewed from behind, with two equal sized lobes (Figs. 6a, 7d,e, 8) 5

— Inner margin of scape rounded to feebly carinate, dorsal edge evenly curved or rarely, gradually sinuate (Figs. 5f–i, 6e), apical process of scape rounded, with one or two unequal lobes when viewed from behind (Figs. 6b,c, 7f–i)..... 6

5(4). Vestiture, except for annulate antennae, concolorous, uniform; dorsal surface including scape and pronotum covered with pale gray pubescence (Figs. 3c, 5d). Pronotal disk finely, sparsely punctate (Fig. 9d). Length 10–14 mm. West-central Mexico ... . ***canescens* (Dillon)**

— Vestiture multicolored, variable; dorsal surface of scape mottled (Fig. 5e), pronotum typically with median area darker than sides resulting in a vittate pattern. Pronotal disk moderately to coarsely punctate (Fig. 9e). Length 9–12 mm. Central and eastern Mexico ..... ***mexicana* Thomson**

6(4). Pronotal disk finely, densely punctate, punctures distinctly smaller than those at base of elytra. Pronotum with a distinct contrasting white and brown vittate pattern (Fig. 9f). Length 5–12 mm. Central Mexico ..... ***spinicornis* (Bates)**

— Pronotal disk moderately to sparsely punctate, punctures at most scarcely smaller than those at base of elytra. Pronotum without distinctly contrasting vittae (Fig. 9g–i) 7

7(6). Antennae, including scape, distinctly gray and black annulate, without distinct light and dark mottling (Fig. 5g). Dorsal surface concolorous, densely covered with gray pubescence (Fig. 1b). Length 9–12 mm. Southern Mexico .. ***giesberti*, new species**

— Antennal scape mottled, remaining segments mottled and/or annulate (Fig. 5h,i). Dorsal surface variable with multicolored pubescence..... 8

8(7). Integument reddish-brown. Pronotum typically without transverse, glabrous calli along anterior third (Fig. 9h). Length 8–12 mm. Michoacan and Jalisco, Mexico... ..... ***ochreostictica*** **(Dillon)**

— Integument black. Pronotum typically with two transverse, glabrous calli along anterior third (Fig. 9i). Length 9–12 mm. Oaxaca and Chiapas, Mexico .... ***chemsaki*****, new species**

Clave para las especies de *Canidia* Thomson

1. Pronoto y cada élitro con tres franjas longitudinales estrechas de pubescencia gris, separadas por regiones estrechas, glabras y negras (Figs. 1a, 9c). Largo 7.5–8.5 mm. Guerrero, México ..... ***turnbowi*****, nueva especie**

— Pronoto y élitro diferente, casi completamente cubiertos por pubescencia, sin franjas longitudinales estrechas de pubescencia gris, separadas por regiones estrechas, glabras y negras..... 2

2(1). Ápices de los élitros bidentados (Fig. 4a,b); ojos sin pubescencia uniformemente orientada en los márgenes 3

— Ápices de los élitros truncados o redondeados (Fig. 4d–h); ojos de la mayoría de los especímenes (excepto algunos de *C. giesberti*) con un margen definido de pubescencia más densa y uniformemente orientada 4

3(2). Superficie dorsal negra; pubescencia del pronoto sin ocultar el integumento; élitros sin manchas definidas (Figs. 3a, 9a). Largo 6–12 mm. Costa Rica y Nicaragua..... ..... ***cincticornis cincticornis*** **Thomson**

— Superficie dorsal gris; pubescencia del pronoto ocultando la mayor parte del integumento; élitros con dos a cuatro manchas negras (Fig. 3b, 9b). Largo 8–12 mm. México meridional a Colombia ..... ***cincticornis balteata*** **(Lacordaire)**

4(2). Margen interno del escapo fuertemente bicarenado, carena dorsal claramente e irregularmente sinuada (Figs. 5d,e, 6d); proceso apical del escapo truncado, con lados paralelos cuando es visto por detrás y con dos lóbulos de igual tamaño (Figs. 6a, 7d,e, 8)..... 5

— Margen interno del escapo redondeado o apenas carenado, borde dorsal gradualmente curvo o, raramente, gradualmente sinuado (Figs. 5f–i, 6e); proceso apical del escapo redondeado, con uno o dos lóbulos de diferentes tamaños cuando es visto por detrás (Figs. 6b,c, 7f–i) 6

5(4). Pubescencia, excepto las antenas anuladas, de color uniforme; superficie dorsal, incluyendo el escapo y pronoto, cubierto con pubescencia gris pálida (Figs. 3c, 5d). Disco del pronoto con puntos finos y dispersos (Fig. 9d). Largo 10–14 mm. México oeste-central ..... ***canescens*** **(Dillon)**

— Pubescencia multicolor y variable; superficie dorsal del escapo manchada (Fig. 5e), pronoto típicamente con el área central más oscura que los lados creando un patrón de franjas. Disco del pronoto con puntuación moderada a gruesa (Fig. 9e). Largo 9–12 mm. México central y oriental ..... ***mexicana* Thomson**

6(4). Disco del pronoto con puntuación fina y densa, puntos claramente más pequeños que los de la base del élitro. Pronoto con un patrón contrastante de franjas definidas, blancas y marrones (Fig. 9f). Largo 5–12 mm. México central..... ..... ***spinicornis* (Bates)**

— Disco del pronoto con puntuación moderada escasa, puntos apenas más pequeños o casi iguales a los de la base del élitro. Pronoto sin un patrón de franjas (Fig. 9g–i) 7

7(6). Antenas, incluyendo el escapo, con anillos definidos grises y negros, sin manchas claras y oscuras (Fig. 5g). Superficie dorsal de color uniforme, cubierto de pubescencia densa gris (Fig. 1b). Length 9–12 mm. México meridional .... ***giesberti*, nueva especie**

— Escapo de la antena manchado, los artículos restantes manchados y/o anulados (Fig. 5h,i). Superficie dorsal variable con pubescencia multicolor 8

8(7). Integumento rojizo-marrón. Pronoto típicamente sin callos transversales glabros, a lo largo del tercio anterior (Fig. 9h). Largo 8–12 mm. Michoacan y Jalisco, México ..... ***ochreostictica* (Dillon)**

— Integumento negro. Pronoto típicamente con dos callos transversales glabros, a lo largo del tercio anterior (Fig. 9i). Largo 9–12 mm. Oaxaca y Chiapas, México .... ***chemsaki*, nueva especie**

Canidia Classification Summary

Canidia Thomson, 1857
Canidiopsis Dillon, 1955, **New synonymy**
Pseudocanidia Dillon, 1955, **New synonymy**

1. *Canidia canescens* (Dillon), **New combination**
Canidiopsis canescens Dillon, 1955
Dectes mexicanus, "form a", Bates, 1881
2. *Canidia chemsaki* Wappes and Lingafelter, **New species**
3a. *Canidia cincticornis cincticornis* Thomson
Canidia cincticornis Thomson, 1857
Dectes cincticornis: Lacordaire, 1872
Canidia cincticornis cincticornis: Dillon, 1955
3b. *Canidia cincticornis balteata* (Lacordaire)
Dectes balteatus Lacordaire, 1872
Dectes (*Canidia*) *balteata inapicalis* Tippmann, 1960, **New synonymy**

Canidia cincticornis inapicalis: Gilmour, 1965

4. *Canidia giesberti* Wappes and Lingafelter, **New species**
5. *Canidia mexicana* Thomson
   Canidia mexicana Thomson, 1860
   Dectes mexicana: Bates, 1881
   Canidiopsis mexicanus: Dillon, 1955
   Canidiopsis similis Dillon, 1955, **New synonymy**
   Canidiopsis hebes Dillon, 1955, **New synonymy**
6. *Canidia ochreostictica* (Dillon), **New combination**
   Pseudocanidia ochreosticticus Dillon, 1956
7. *Canidia spinicornis* (Bates)
   Dectes spinicornis Bates, 1881
   Canidia spinicornis Bates, 1885
   Pseudocanidia cuernavacae Dillon, 1955, **New synonymy**
8. *Canidia turnbowi* Wappes and Lingafelter, **New species**

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