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*Agrilinellus*, new genus and four new species of Mexican Aphodiini  
(Scarabaeoidea: Scarabaeidae: Aphodiinae)

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(Scarabaeoidea: Scarabaeidae: Aphodiinae)

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**Abstract.** *Agrilinellus*, new genus is created for *Agrilinus azteca* (Harold) (type species), *A. chiapasensis* (Galante, Stebnicka and Verdú), and *A. ornatus* (Schmidt). Four new species from Mexico are described: *Agrilinellus abbonai*, *Agrilinellus antonioreyi*, *Agrilinellus nuriae*, *Agrilinellus oaxacaensis*.

**Key words.** *Agrilinellus*, new genus, new species, new combinations, Mexico, Guatemala, El Salvador, Aphodiinae.

**Introduction**

In preparation for a complete treatment of Mexican Aphodiinae and other studies on Aphodiini from Mexico, Central and South America, we create a new genus for some previously described species and describe four new species.

The new genus belongs to a group of genera close to *Agrilinus* Mulsant and Rey that share the same morphological features. These genera are characterized mainly by: scutellum small, triangular or cordiform; hind tibiae apically fimbriate with more or less short and equal spinules; hind angles of pronotum obtusely rounded; base of pronotum bordered; elytra glabrous or, at most, with short pubescence.

Conversely the new genus is distinguished from other genera sharing some of the above mentioned characters by the frontal suture lacking tubercles, and the aedeagus with parameres short (slightly shorter than half the length of the tegmen).

Terms used in this paper to describe morphological structures follow that of Dellacasa et al. (2001).

**Key to Mesoamerican Genera of “Agrilinus group” Aphodiini**

1.	Frontal suture tuberculate .....	2
—	Frontal suture not tuberculate .....	5
2(1).	Frontal suture distinctly trituberculate .....	3
—	Frontal suture with a median tubercle only .....	4
3(2).	Scutellum regularly triangular; inferior apical spur of male middle tibiae shortened and apically hooked .....	<i>Agoliinus</i> Schmidt

- Scutellum cordiform; inferior apical spur of middle tibiae regularly acuminate in both sexes ....  
..... *Haroldiellus* Gordon and Skelley
- 4(2). Clypeus subtruncate anteriorly ..... *Planolinellus* Dellacasa and Dellacasa  
— Clypeus distinctly sinuate at middle ..... *Planolinoides* Dellacasa and Dellacasa
- 5(1). Aedeagus with parameres elongate, longer than tegmen; apex obliquely truncate .....  
..... *Planolinus* Mulsant and Rey  
— Aedeagus with parameres short, slightly shorter than half tegmen's length; apex variable, but  
not obliquely truncate ..... *Agrilinellus* n. gen.

## Materials

Materials studied are deposited in the following collections:

**CMNC** – Canadian Museum of Nature, Ottawa, Canada

**CNCO** – Canadian National Collection, Ottawa, Canada

**FSCA** – Florida State Collection of Arthropods, Gainesville, USA

**DCGC** – G. Dellacasa and M. Dellacasa collection, Genoa, Italy

**HAHC** – Henry F. Howden and Anne Howden collection, Ottawa, Canada [now in CMNC]

**PESC** – Paul E. Skelley collection, Gainesville, FL, USA

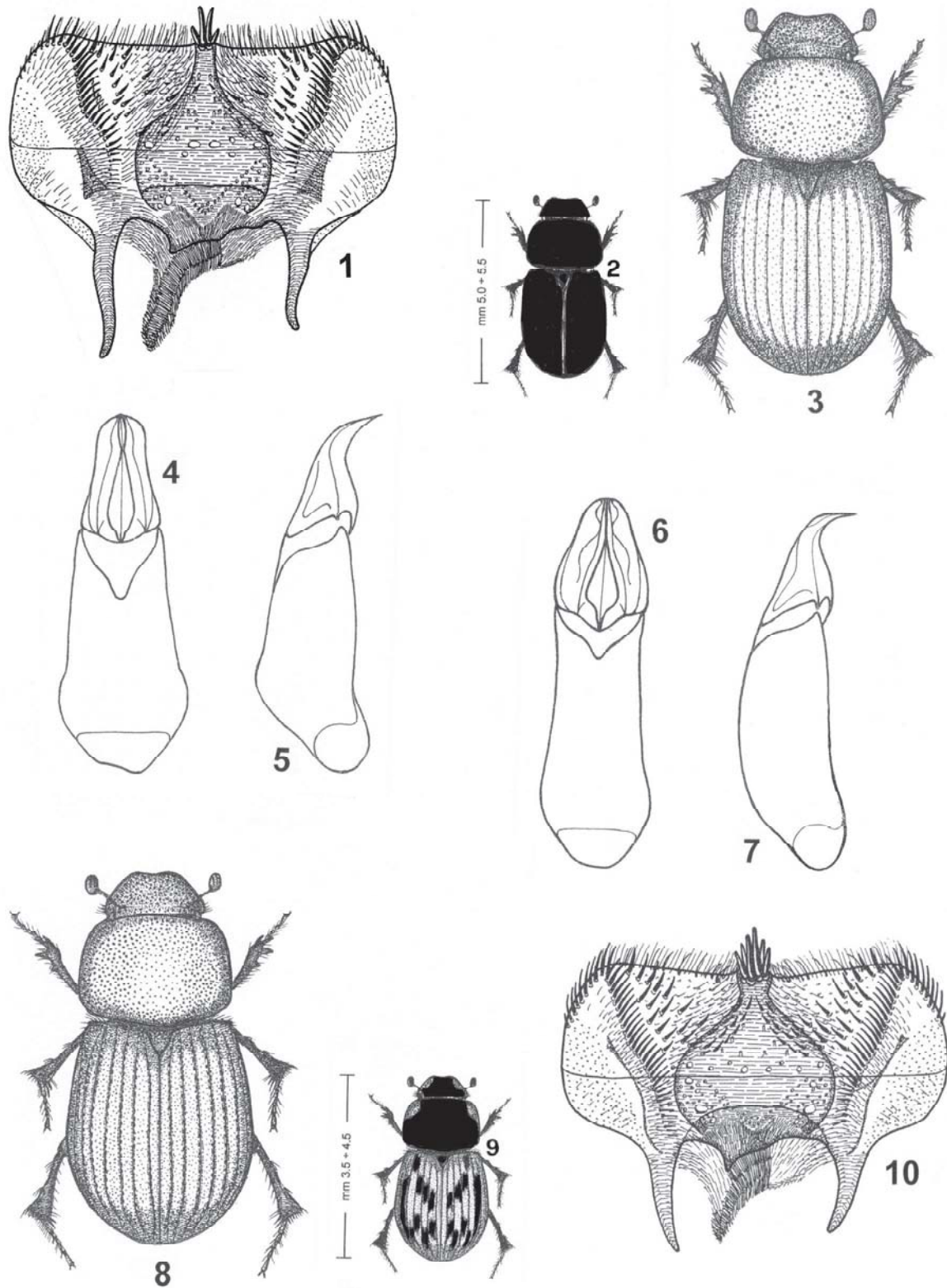
**USNM** – United States National Museum, Washington, DC, USA

## *Agrilinellus* new genus

**Type species.** *Aphodius azteca* Harold, 1863, here designated.

**Diagnosis.** Small species (length 3.0-5.5 mm), oval or moderately elongate, convex, moderately shiny or almost dull, glabrous or with elytra more or less widely pubescent. Blackish, head and pronotum mostly black; elytra variable, sometimes black, reddish or with yellowish spots. Head with epistome moderately convex, coarsely, regularly evenly punctured; clypeus weakly sinuate at middle, subangulate or rounded at sides, bordered, edge glabrous; genae obtusely rounded, ciliate, more or less strongly protruding more than eyes; frontal suture at most faintly trigibbous; frons evenly, coarsely punctured. Pronotum transverse, moderately convex, dually and more or less densely punctured or almost regularly evenly punctured; hind angles obtusely rounded; basal margin bordered, border rarely interrupted at middle. Scutellum small, triangular. Elytra oval or subcylindrical; humerus denticulate or not; striae extremely fine, superficial and almost impunctate or deep, distinctly punctured, more or less strongly crenulate; interstices feebly convex or flat, sparsely finely or coarsely and more or less densely punctured, sometimes almost imperceptibly pubescent on preapical declivity only or more or less widely pubescent throughout. Fore tibiae distally tridentate and proximally not serrulate at outer margin; upper surface smooth. Hind tibiae with strong transverse carinae on outer face; apically fimbriate with short and equal spinules except in *A. antonioreyi* in which they are alternately unequal. Pygidium coarsely regularly punctured, apical third with short recumbent pubescence; apical margin with few elongate, straight setae. Sexual dimorphism shown in males by frontal suture somewhat more distinct and gibbose, pronotum not narrowed anteriorly, more convex and less densely punctured on disc; metasternal plate concave and laterally pubescent. Aedeagus with parameres short, almost as long as half of tegmen. Epipharynx rounded at sides, weakly bisinuate at front margin; epitorma campaniform; corypha not protruding beyond front margin and with clump of stout apical spiculae, the two central distinctly longer than others; pedia more or less widely and densely pubescent, mixed several stout chaetae subserially arranged; chaetopariae dense, moderately elongate.

**Distribution.** Mexico, Guatemala, El Salvador.



**Figure 1-10.** *Agrilinellus abbonai* new species. (Los Azufres, Laguna Larga, Michoacán, Mexico). **1)** Epipharynx. **2)** Habitus. **3)** Habitus of male (morphological details). **4-5)** Aedeagus (dorsal and lateral view). *Agrilinellus chiapasensis* (Galante et al., 2003) (Monte Cristo, m 2300, 23 Km N Metapán, El Salvador). **6-7)** Aedeagus (dorsal and lateral view). **8)** Habitus of female (morphological details). **9)** Habitus. **10)** Epipharynx.

**Etymology.** The generic name (gender masculine) is derived from the genus name *Agrilinus* Mulsant and Rey, 1870.

### Key to species of *Agrilinellus*

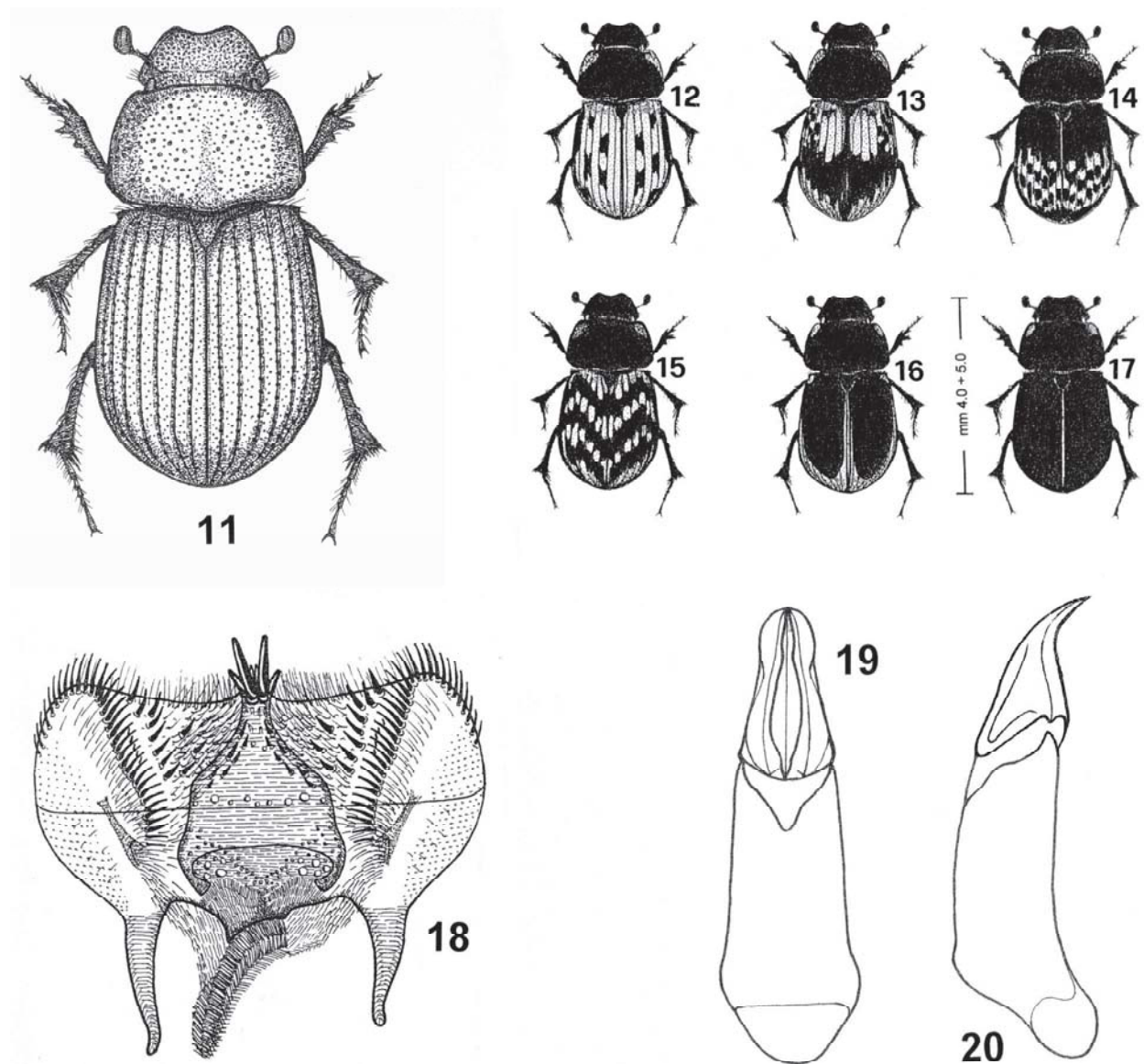
1. Elytral striae extremely fine, superficial, faintly punctured, not crenulate; intervals almost imperceptibly punctured (Fig. 43). Shiny black. Length 5.0-5.5 mm. Mexico (Michoacán) ..... ***A. abbonai* n. sp.**  
 — Elytral striae wide, more or less deep, distinctly punctured, more or less strongly crenulated . 2
- 2(1). Shape oval, moderately convex (Fig. 8, 11, 23, 44-46); humerus denticulate or subdenticulate .. 3  
 — Shape subcylindrical, strongly convex (Fig. 24, 35, 40); humerus not denticulate ..... 5
- 3(2). Pronotum coarsely, densely, irregularly punctured, punctures dual; elytral intervals biserially coarsely somewhat irregularly punctured on each side; punctures with short recumbent hairs (Fig. 44). Reddish brown, elytra yellowish with brownish spots variously arranged. Length 4.0-5.0 mm. Mexico (Oaxaca) ..... ***A. oaxacaensis* n. sp.**  
 — Pronotum subregularly sparsely punctured; punctures even or dual; elytral intervals more or less densely, not coarsely punctured, minutely pubescent on preapical declivity only (Fig. 45-46) ..... 4
- 4(3). Pronotum dually punctured, basal border always entire; clypeus obtusely angulate at side of median sinuosity (Fig. 45). Piceous; sometimes sides of pronotum more or less widely testaceous and elytra yellowish with several blackish spots variously scattered and/or broadened. Length 4.0-5.0 mm. Mexico (Guerrero, Hidalgo, México, Oaxaca, Puebla, Tabasco, Veracruz), Guatemala ..... ***A. azteca* (Harold)**  
 — Pronotum simply punctured, basal border sometimes interrupted at middle; clypeus widely rounded at sides of median sinuosity (Fig. 46). Testaceous; head medially, pronotal disc and some variously scattered elytral spots piceous. Length 3.5-4.5 mm. Mexico (Chiapas); El Salvador (Metapán) ..... ***A. chiapasensis* (Galante, et al.)**
- 5(2). Elytral intervals strongly alutaceous, thus almost dull, coarsely, densely, somewhat irregularly punctured (Fig. 49), distinctly pubescent mostly laterally and on preapical declivity; pronotum alutaceous, moderately shiny, dually, densely punctured. Blackish brown, sometimes elytra reddish-brown. Length 3.0-3.5 mm. Mexico (Michoacán, México) ..... ***A. antonioreyi* n. sp.**  
 — Elytral intervals superficially alutaceous or shiny, sparsely punctured (Fig. 47-48), nearly imperceptibly pubescent preapically; pronotum shiny, sparsely punctured ..... 6
- 6(5). Elytral striae deep, strongly crenulate; larger pronotal punctures umbilicate (Fig. 47). Blackish; elytra dark reddish. Length 3.0-3.5 mm. Mexico (Nuevo León) ..... ***A. nuriae* n. sp.**  
 — Elytral striae not so deep and not so strongly crenulate; larger pronotal punctures not umbilicate (Fig. 48). Blackish; sometimes elytra more or less widely testaceous or with several yellowish spots variously scattered and more or less widened. Length 3.0-4.0 mm. Mexico (Durango, Hidalgo, México, Michoacán, Puebla, Veracruz) ..... ***A. ornatus* (Schmidt)**

### *Agrilinellus abbonai*, new species

(Fig. 1-5, 43)

**Type locality.** Los Azufres, Laguna Larga, Michoacán, Mexico.

**Type repository.** Florida State Collection of Arthropods (Gainesville).



**Figure 11-20.** *Agrilinellus azteca* (Harold, 1863) (Cruz Blanca, Veracruz, Mexico). **11)** Habitus of male (morphological details). **12-17)** Color variation. **18)** Epipharynx. **19-20)** Aedeagus (dorsal and lateral view).

**Description.** Length 5.0-5.5 mm; oblong, convex, strongly shiny, glabrous. Black; tarsi and antennal club piceous. Head with epistome feebly gibbous on disc, finely almost irregularly punctured, punctation faint on disc sparser distally; clypeus slightly sinuate at middle, rounded at sides, thinly bordered, edge glabrous and faintly upturned; genae obtusely rounded, shortly ciliate, protruding more than eyes; frontal suture faintly impressed, medially almost obsolete, only laterally somewhat raised; frons sparsely irregularly punctured. Pronotum transverse, strongly convex, dually punctured; large punctures twice larger than small ones, lacking on disc, denser on sides; lateral margins feebly arcuate, thinly bordered, subparallel before hind angles; latter obtusely rounded; base slightly bisinuate, thinly bordered. Scutellum somewhat depressed at middle. Elytra oval elongate, strongly convex; epipleural carina subdenticulate at humerus; striae extremely fine, faintly punctured; intervals almost imperceptibly punctured. Hind tibiae superior apical spur as long as first tarsal segment; latter longer than following two combined. Male: pronotum relatively more convex, not narrowed anteriorly, more superficially sparsely punctured

on disc; aedeagus Fig. 4-5. Female: pronotum relatively less convex, somewhat narrowed anteriorly, more distinctly densely punctured on disc.

**Type material.** MEXICO, Michoacán: Laguna Larga, Los Azufres, 25.VIII.1985, leg. Zunino M., 1 ex. (**Holotype**, male, FSCA) and 8 ex. (**Paratypes**, DCGC); *idem*, m 2250, 17.VII.1988, leg. Zunino M., 1 ex. (**Paratype**, DCGC); S. Pedro Jácuaró, 26.VIII.1985, leg. Zunino M., 1 ex. (**Paratype**, PESC).

**Distribution.** Mexico (Michoacán).

**Etymology.** Named in honor of Prof. Carlo Abbona, an eminent physician in Genoa, Italy.

**Bionomics.** Almost unknown, the specimens examined were collected in July and August.

***Agrilinellus antonioreyi*, new species**

(Fig. 38-42, 49)

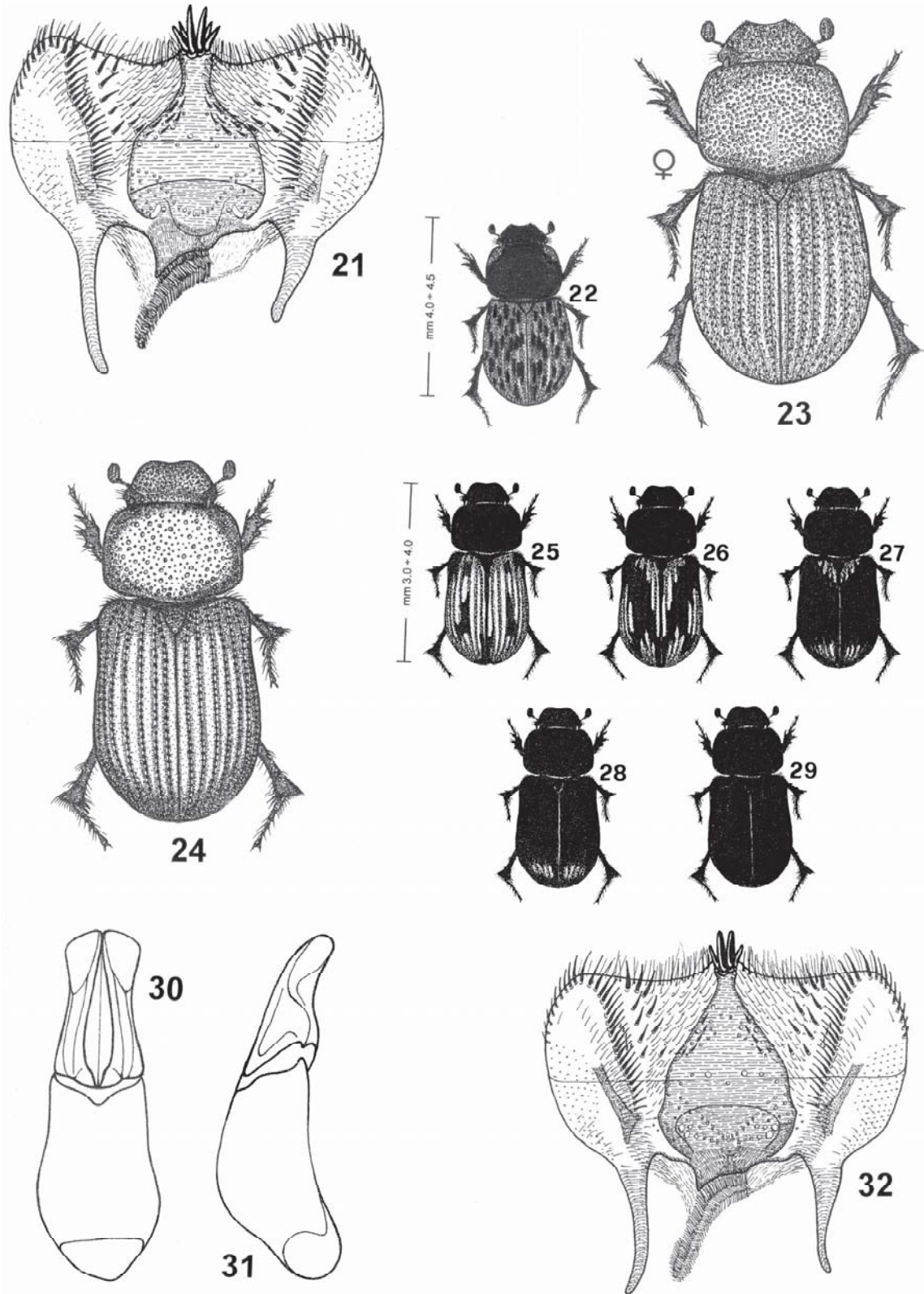
**Type locality.** México, Real de Arriba, Temascaltepec [= Temascaltepec].

**Type repository.** United States National Museum (Washington, DC, USA)

**Description.** Length 3.0-3.5 mm; oblong, convex, head and pronotum moderately shiny, elytra almost dull, pubescent. Blackish brown, sometimes elytra vaguely reddish brown; legs dark brown, antennal club blackish. Head with epistome feebly gibbous and finely alutaceous on disc, almost evenly, not closely punctured; punctation sparser on disc; clypeus feebly sinuate at middle, obtusely rounded at sides, rather thickly bordered, edge slightly reflexed, glabrous; genae rounded, sparsely ciliate, feebly more protruding than eyes; frons rather coarsely, evenly, not closely punctured. Pronotum weakly transverse, strongly convex, superficially alutaceous thus moderately shiny, dually, coarsely, densely punctured and with a narrow longitudinal median areola impunctate; punctation laterally with extremely short, recumbent hairs; large umbilicate punctures, four or five times larger than small, evenly scattered throughout as well as smaller punctures; lateral margins feebly arcuate, distinctly bordered, edge sparsely ciliate; hind angles obtusely rounded; base rather thickly bordered. Scutellum elongate, coarsely irregularly punctured on basal half. Elytra elongate, convex, slightly widened posteriorly; striae rather deep, distinctly punctured, crenulate; intervals feebly convex, distinctly alutaceous thus rather dull, coarsely, densely, somewhat irregularly punctured, distinctly pubescent, remarkably so laterally and toward apex. Hind tibiae apically fimbriate with rather short, stout but alternately unequal spinules; superior apical spur shorter than first tarsal segment; latter almost as long as following three combined. Male: punctation of pronotum and elytral intervals relatively less coarse and less dense; metasternal plate weakly excavate, coarsely irregularly punctured and pubescent toward lateral margins; aedeagus Fig. 38-39. Female: punctation of pronotum and elytral intervals relatively more coarse and more dense; metasternal plate almost flat, finely, sparsely irregularly punctured.

**Type material.** MEXICO, México: Real de Arriba, Temascaltepec [= Temascaltepec], VII.1933, leg. Hinton H. E. & Usinger R. L., 23 ex. (**Holotype**, male, and **Paratypes**, USNM); Centro Ceremonial Otomi env., 19°31'24.8"N-99°32'14.1"W, m 2650, 23.VII.2004, leg. Dellacasa M. & Martínez I., sheep dung, 3 ex. (**Paratypes**, DCGC, PESC); Salazar, 8.IX.1968, leg. Cabrera M., bosque de Abies, excr., 2 ex. (**Paratypes**, DCGC); Toluca, 16.VII.1933 leg. Hinton H. E. & Usinger R. L., 1 ex. (**Paratype**, USNM); Michoacán: rd. Mex 41 Patzcuaro-Tacámbaro, Sta. Clara del Cobre env., 19°24'N-101°35'W, m 2200, 25.VII.2001, leg. Dellacasa M. & Martínez I., 1 ex. (**Paratype**, DCGC) and 1 ex. (**Paratype**, DCGC); rd. Mex 41 Patzcuaro-Tacámbaro, La Estacada, 19°24'N-101°32'W, m 2450, 25.VII.2001, leg. Dellacasa M. & Martínez I., 1 ex. (**Paratype**, DCGC); rd. Mex 15 Zitácuaro-Toluca, El Jacal, 19°24'13.1"N-100°05'53.9"W, m 2300, 27.VII.2001, leg. Dellacasa M., 1 ex. (**Paratype**, DCGC); Cruz Gorda env., 19°21'58.5"N-101°29'33.1"W, m 2250, 25.VII.2003, leg. Dellacasa M. & Martínez I., 1 ex. (**Paratype**, DCGC); Los Azufres, Laguna Larga, 25.VIII.1985, leg. Zunino M., 1 ex. (**Paratype**, DCGC); **Distrito Federal:** D.F., 17.VII.1933, leg. Hinton H. E. & Usinger R. L., 5 ex. (**Paratypes**, USNM).





**Figure 21-32.** *Agrilinellus oaxacaensis* new species [9.5 mi E of Oaxaca, (Km 80 Rt 175), Oaxaca, Mexico]. **21)** Epipharynx. **22)** Habitus. **23)** Habitus of female (morphological details). *Agrilinellus ornatus* (Schmidt, 1911) (Cuiyachapa, Mpio. Coscomatepec, Veracruz, Mexico). **24)** Habitus of male (morphological details). **25-29)** Color variation. **30-31)** Aedeagus (dorsal and lateral view). **32)** Epipharynx.

**Distribution.** Mexico (Distrito Federal, México, Michoacán).

**Etymology.** Named in honor of Dr. Antonio Rey, librarian of Società Entomologica Italiana.

**Bionomics.** Most specimens were collected in summer, in cattle, horse and sheep dung.

***Agrilinellus azteca* (Harold, 1863), new combination**

(Fig. 11-20, 45)

*Aphodius azteca* Harold, 1863: 381; Bates, 1887: 84 (*A. aztecus* [sic]); Blackwelder, 1944: 212 (*A. aztecus*).  
*Aphodius encaustus* Deyrolle teste Harold, 1863 (*nomen nudum*); Dellacasa 1988: 348.

*Aphodius euprosopus* Bates, 1887: 87; Blackwelder, 1944: 212; Dellacasa et al. 1998: 155 (lectotype designation); Dellacasa et al. 2002: 183.

*Aphodius (Agrilinus) azteca*; Schmidt, 1913: 164; Dellacasa 1988: 94; Dellacasa et al. 1998: 153.

*Aphodius multimaculosus* Hinton, 1934: 190; Blackwelder, 1944: 212; Skelley et al. 2007: 2 (as synonym of *Agrilinus azteca*).

*Aphodius (Chilothorax) multimaculosus*; Dellacasa 1988: 140.

*Aphodius (Chilothorax) euprosopus*; Dellacasa 1988: 126.

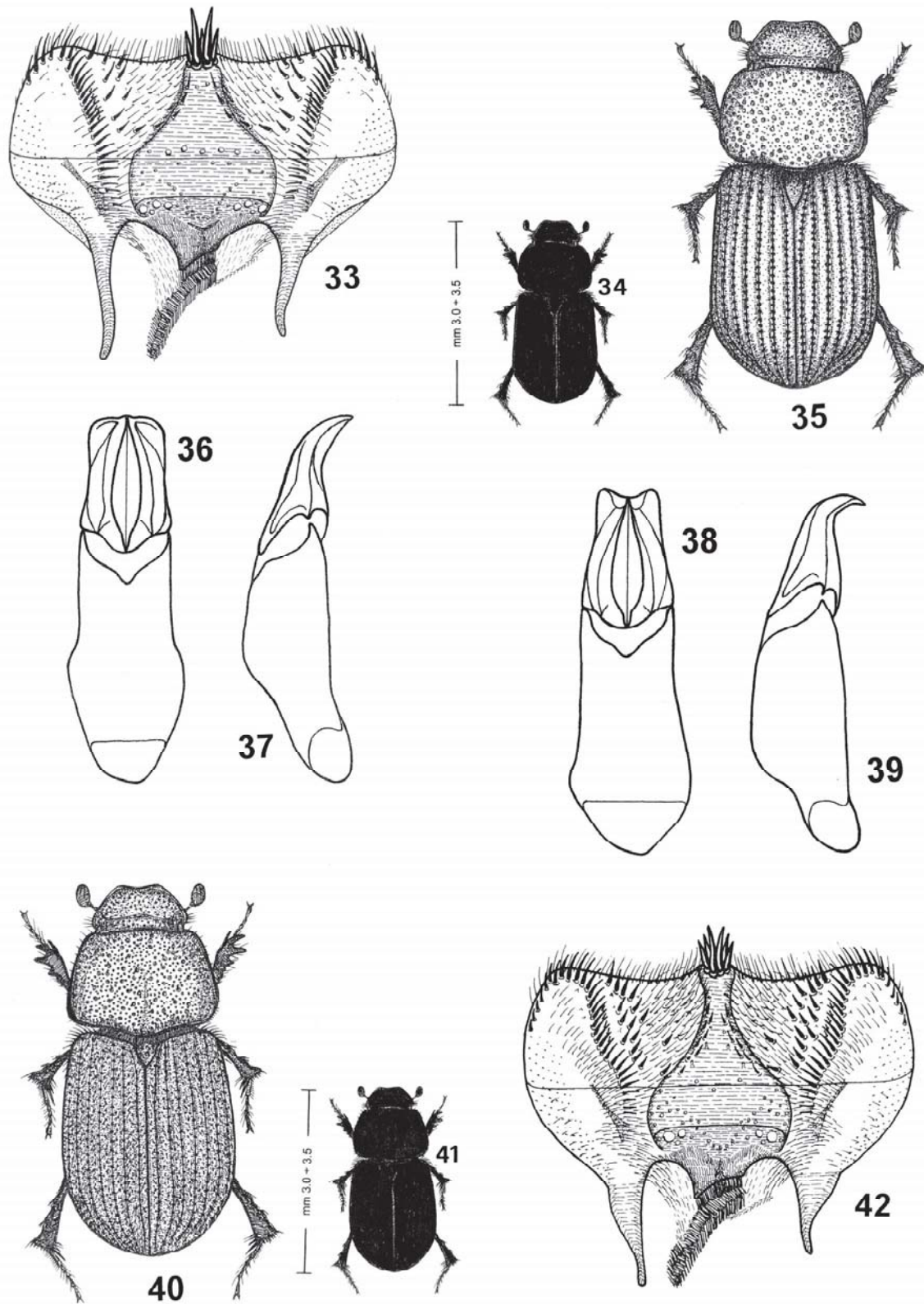
*Agrilinus azteca*; Dellacasa et al. 2002: 163; Skelley et al. 2007: 2.

**Type locality.** Mexico.

**Type repository.** Muséum National d'Histoire Naturelle. Paris. (Lectotype male designated by Dellacasa et al. 1998: 53)

**Description.** Length 4.0-5.0 mm; oval, moderately convex, shiny, almost glabrous. Blackish, front angles of pronotum vaguely reddish; legs brownish-red; antennal club blackish (typical color pattern, Fig. 17); sometimes elytra yellowish with several small blackish spots (color pattern of *A. euprosopus* Bates, 1887, Fig. 12), or elytra basally yellowish with small blackish spots on the distal half, with a wide blackish band, apex yellowish (Fig. 13), or elytra basally blackish posteriorly with two oblique bands of small blackish spots each other joined by opposite angles (Fig. 14), or elytra with three oblique bands of small blackish spots each other joined by opposite angles (color pattern of *A. multimaculosus* Hinton, 1934; Fig. 15), or elytra blackish with juxtasutural interval, lateral margins and apex yellowish (Fig. 16). Head with epistome feebly gibbous, distinctly regularly punctured; clypeus sinuate at middle, subangulate at sides, thinly bordered, edge feebly upturned near front angles; genae obtusely rounded, sparsely shortly ciliate, protruding more than eyes; frontal suture feebly trigibbous; frons distinctly evenly punctured. Pronotum transverse, moderately convex, dually punctured, with narrow impunctate longitudinal area on disc; large punctures, two to three times larger than small, irregularly sparse, denser on sides; small punctures rather evenly scattered throughout; lateral margins nearly straight, distinctly bordered, edge glabrous; hind angles obtusely rounded; base faintly bisinuate, distinctly bordered. Scutellum distinctly punctured on basal two thirds. Elytra oval, convex, denticulate at humerus, distinctly striate; striae punctured, feebly crenulate; intervals flat, the discal ones densely punctured, the lateral more coarsely punctured, with extremely short and sparse hairs toward apex. Hind tibiae superior apical spur shorter than first tarsal segment; latter nearly as long as following three combined. Male: head and pronotum relatively more transverse, less convex and less densely punctured; frontal suture distinctly trigibbous; aedeagus Fig. 19-20. Female: head and pronotum relatively less transverse, strongly convex and densely punctured; frontal suture with gibbosities nearly obsolete.

**Material examined.** MEXICO, Guerrero: Omiltemi, 25.VII.1965, leg. Halffter G., 140 ex. (CNCO); *idem*, 26.VII.1965, leg. Halffter G., 52 ex. (CNCO); México: Ixtaccihuatl, 12.IV.1953, leg. Halffter G., 2 ex. (USNM); Paso de Cortes, 19°05'11.4"N-98°38'47.1"W, m 3300, 24.VII.2004, leg. Dellacasa M., cow dung, 2 ex. (DCGC); Río Frío, 6.V.1962, leg. Reyes P. & Olguín M., 1 ex. (DCGC); Volcan Popocatepetl, ca. 12000', 30.VII-1.VIII.1969, leg. Peck S. & J., 1 ex. (HAHC); Michoacán: Michoacán, 1.VI.1946, leg. Forshag W. F., 2 ex. (USNM); Oaxaca: Llano de las Flores, Aserradero Atepec, 17°26'37.1"N-96°30'12.2"W,



**Figure 33-42.** *Agrilinellus nuriae* new species (Cerro El Potosí, Nuevo León, Mexico). **33)** Epipharynx. **34)** Habitus. **35)** Habitus of male (morphological details). **36-37)** Aedeagus (dorsal and lateral view). *Agrilinellus antonioreyi* new species (rd Mex 41 Patzcuaro-Tacámbaro, Sta. Clara del Cobre env., Michoacán, Mexico). **38-39)** Aedeagus (dorsal and lateral view). **40)** Habitus of male (morphological details). **41)** Habitus. **42)** Epipharynx.

m 1600, 12.V.2003, leg. Martínez I. & Suarez T., 1 ex. (DCGC); cam. Oaxaca-Tuxtepec, Km 190, m 2470, 7.VII.2000, leg. Martínez I., tronco de encino, 3 ex. (DCGC); S. Domingo Ozolotepec, 4.7 Km NNW S. D. Ozolotepec, 16°15'00"N-96°32'18"W, m 2720, 4.IX.2005, leg. Abundis, Carrillo & Vaz de Mello, 1 ex. (DCGC); Santo Domingo Yanhuitlan env., 17°32'36.2"N-97°22'18.2"W, m 2362, 1.VII.2007, leg. Dellacasa M., Fresi C. & Martínez I., 1 ex. (DCGC); Real de Arriba, Temascaltepec [= Temascaltepec], 13.VII.1933, 1 ex. (USNM); Salazar, 16.XI.1956, leg. Halffter G. & V., 6 ex. (USNM); **Puebla**: carr. Puebla-Paso de Cortes, 19°05'20.5"N-98°36'25.1"W, m 3365, 17.VII.2006, leg. Martínez I., Suarez S., Gonzalez O., Cabrero F. & Trotta N., 1 ex. (DCGC); *idem*, 14.VIII.2006, 1 ex. (DCGC); San Nicolas de los Ranchos-Paso de Cortes, 19°05'50.5"N-98°36'51.0"W, m 3350, 10.VII.2006, leg. Dellacasa M., Fresi C. & Martínez I., cow dung, 2 ex. (DCGC); Tlaxco, 5 mi N, 26.VIII.1965, leg. Spangler P. J., 1 ex. (USNM); **Veracruz**: Cruz Blanca, 24.II.1993, 1 ex. (DCGC); caminoex. a Potrero Nuevo, Cuiyachapa, 15.XI.1994, leg. Arellano L. & Zunino M., potrero, bosque de Pino, col. directa, excr. oveja, 5 ex. (DCGC, pesc); Cuiyachapa, Mpio. Coscomatepec, 6.II.1999, leg. Alvarado M., en boñiga, 9 ex. (DCGC); *idem*, 8.III.1999, leg. Alvarado M. & Cruz M., 3 ex. (DCGC); Cuiyachapa env., Mpio. Coscomatepec, 14.X.1998, leg. Cruz M. & Sosa J., 1 ex. (DCGC); camino a Est. Las Lajas, 13.VI.1994, leg. Arellano L. & Sanchez P., excr. borrego, 3 ex. (DCGC); Las Vigas, 4.5 mi S, 9000', 19-20.VII.1973, leg. Newton A., 508DH, 1 ex. (HAHC). **GUATEMALA**, San Marcos, 11.5 Km NW San Marcos, m 3000, 24-25.V.1973, 1 ex. (USNM).

**Distribution.** Mexico (Guerrero, Hidalgo, México, Michoacán, Oaxaca, Puebla, Tabasco, Veracruz), Guatemala.

**Bionomics.** This species is a year-round generalist dung feeder found in cow, horse and sheep dung.

***Agrilinellus chiapasensis* (Galante, et al., 2003), new combination**

(Fig. 6-10, 46)

*Aphodius (Agrilinus) chiapasensis* Galante et al. 2003: 306.

*Agrilinus chiapasensis*: Skelley et al. 2007: 2.

**Type locality.** Mezotal, Chiapas, Mexico.

**Type repository.** Collection of Entomology, University of Alicante. Spain. (Holotype male not examined, our request for its loan remaining unanswered.)

**Description.** Length 3.5-4.5 mm; oval, convex, moderately shiny, almost glabrous. Piceous; head distally, pronotum on sides, more or less widely yellowish; elytra yellow with sutural margin and two oblique bands of more or less broadened piceous spots; legs reddish-brown; antennal club dark testaceous. Head with epistome moderately gibbous, distinctly evenly almost densely punctured; clypeus feebly sinuate at middle, widely rounded at sides, thinly bordered, edge glabrous; genae obtusely rounded, shortly ciliate, feebly protruding more than eyes; frontal suture only laterally distinct and somewhat raised; frons evenly distinctly punctured. Pronotum transverse, convex, evenly punctured, the punctures moderately dense, somewhat more sparse and superficial on disc; lateral margins feebly arcuate, thinly bordered, edge glabrous; hind angles obtuse; base feebly bisinuate, thinly bordered, sometimes the border more or less widely interrupted at middle. Elytra oval, strongly convex, superficially alutaceous thus moderately shiny, with a small denticle at humerus; striae moderately impressed, distinctly punctured, crenulate; intervals flat, distinctly finely and sparsely punctured, minutely pubescent on preapical declivity. Hind tibiae superior apical spur shorter than first tarsal segment; latter longer than following two combined. Male: pronotum relatively more transverse, not narrowed anteriorly; metasternal plate spoon-shaped, distinctly punctured and pubescent; aedeagus Fig. 6-7. Female: pronotum relatively less transverse, somewhat narrowed anteriorly; metasternal plate almost flat, sparsely punctured, glabrous.

**Material examined.** **EL SALVADOR:** Monte Cristo, 23 Km N Metapán, m 2300, 8-10.V.1971, leg. Howden H. F., 4 ex. (DCGC, HAHC); Monte Cristo, 7-9.V.1958, leg. Cartwright O. L., 1 ex. (USNM).



**Figure 43-46.** *Agrilinellus* spp., dorsal habitus. 43) *A. abbonai* new species (S. Pedro Jácuaró, Michoacán, Mexico). 44) *A. oaxacaensis* new species (Guelatao env., Oaxaca, Mexico). 45) *A. azteca* (Harold, 1863) (camino ex. a Potrero Nuevo, Cuiyachapa, Veracruz, Mexico). 46) *A. chiapasensis* (Galante et al., 2003) (Monte Cristo, 23 Km N Metapán, El Salvador).

**Distribution.** Mexico (Chiapas), El Salvador (Metapán).

**Bionomics.** Almost unknown; the specimens examined were collected in May.

***Agrilinellus nuriae*, new species**

(Fig. 33-37, 47)

**Type locality.** MEXICO, Nuevo León, Cerro El Potosí, 24°52'28.1"N-100°13'14.9"W, m 3274.

**Type repository.** Dellacasa Collection. Genoa (Italy).

**Description.** Length 3.0-3.5 mm; oblong, convex, shiny, almost glabrous. Blackish; clypeal margin and pronotal anterior angles shadowy reddish; elytra reddish with sutural margin brownish; legs brownish-red with paler tarsi; antennal club piceous. Head with epistome weakly convex, coarsely, regularly, not closely punctured; punctation distally confusedly subrugose; clypeus feebly sinuate at middle, rounded at sides, almost thickly bordered, the edge glabrous, somewhat upturned; genae rounded, ciliate, weakly protruding more than eyes; frontal suture subcariniform; frons evenly coarsely punctured. Pronotum moderately transverse, strongly convex, dually coarsely subregularly punctured; large punctures, five to six times larger than small, umbilicate and scattered throughout; lateral margins subparallel, distinctly bordered, edge glabrous; hind angles obtusely rounded; base thickly bordered. Scutellum elongate, sparsely coarsely punctured on two basal two thirds. Elytra elongate, feebly widened posteriorly; striae deep, strongly punctured, distinctly crenulate; intervals feebly convex, finely sparsely punctured, almost imperceptibly pubescent on preapical declivity. Hind tibiae superior apical spur somewhat shorter than first tarsal segment; latter shorter than following three combined. Male: fore tibiae apical spur relatively stouter and downward bent; pronotum not narrowed anteriorly; metasternal plate concave, punctured, laterally pubescent; aedeagus Fig. 36-37. Female: fore tibiae apical spur slender and almost straight; pronotum somewhat narrowed anteriorly; metasternal plate almost flat, more sparsely punctured, glabrous.

**Type material. Mexico, Nuevo León:** Cerro El Potosí, 24°52'28.1"N-100°13'14.9"W, m 3274, 4.VII.2006, leg. Dellacasa M., Fresi C. & Martínez I., cow dung, 1 ex. (**Holotype**, male, DCGC) and 5 ex. (**Paratypes**, DCGC, FSCA).

**Distribution.** Known from the type locality only.

**Etymology.** Named in honor of scarabaeidologist Dr. Nuria Trotta Moreu.

**Bionomics.** Almost unknown, the specimens were collected in July in cow dung.

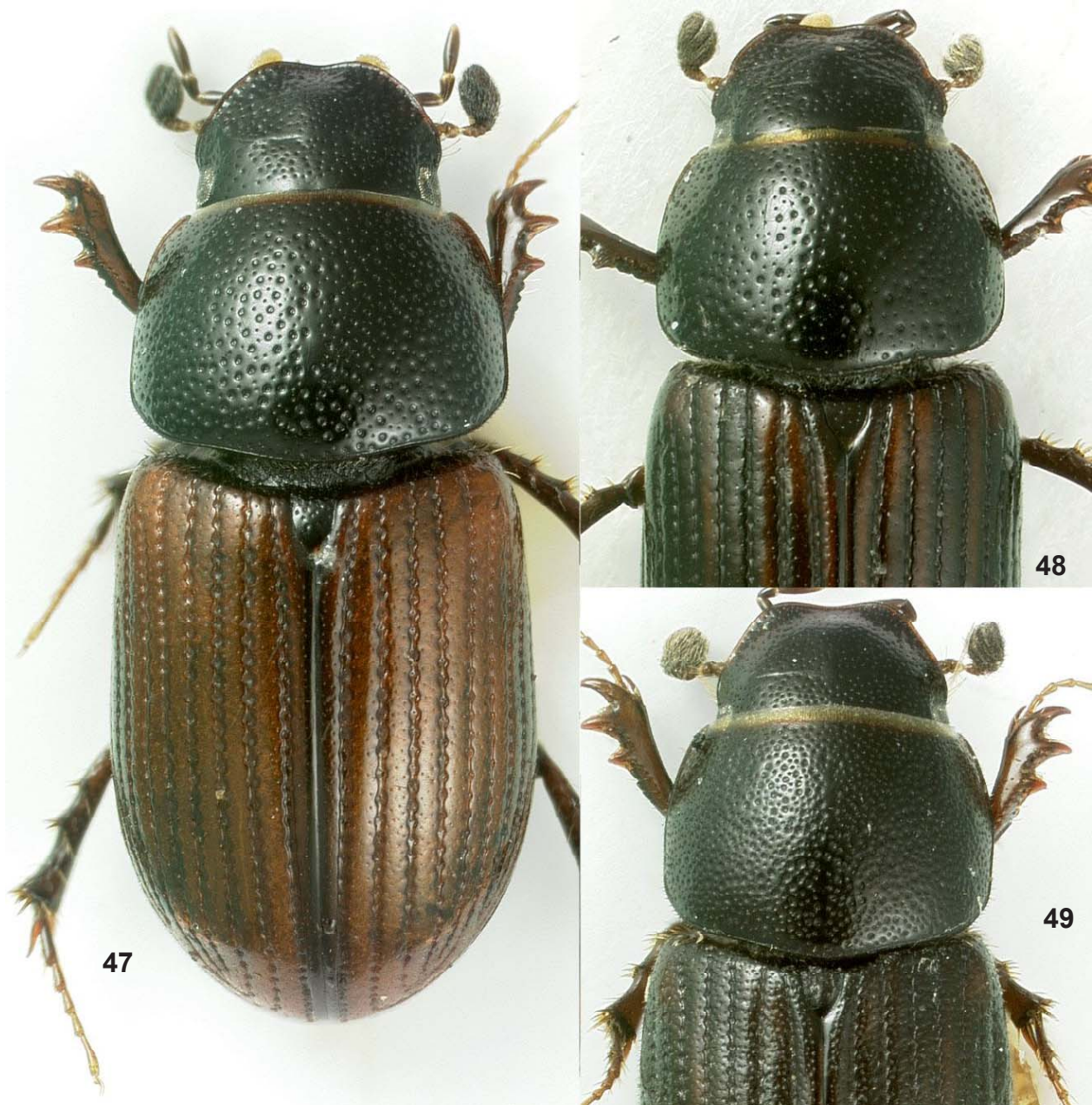
***Agrilinellus oaxacaensis*, new species**

(Fig. 21-23, 44)

**Type Locality.** Mexico, Oaxaca, 9.5 mi. E of Oaxaca (Km 80 Rt. 175), 6000'.

**Type repository.** Henry F. Howden and Anne Howden collection, Ottawa, Canada [now in CMNC]

**Description of female.** Length 4.0-4.5 mm; oval, moderately convex, shiny; head and pronotum glabrous, elytra pubescent. Reddish brown, head and pronotum more or less widely reddish at margins; elytra yellowish with brownish spots variously arranged; legs brownish red; antennal club reddish. Head with epistome moderately gibbous on disc, coarsely, densely, subregularly punctured; punctation somewhat superficial and sparse on disc only; clypeus weakly sinuate at middle, subangulose at sides, thinly bordered, edge shortly and sparsely bristled laterally and feebly reflexed at front angles; genae obtusely rounded, sparsely ciliate, protruding more than eyes; frontal suture finely impressed, slightly trigibbous; frons coarsely, densely, evenly punctured. Pronotum transverse, moderately convex, shiny, coarsely,



**Figure 47-49.** *Agrilinellus* spp., dorsal habitus. **47)** *A. nuriae* new species (Cerro El Potosí, Nuevo León, Mexico). **48)** *A. ornatus* (Schmidt, 1911) (Cuiyachapa, Veracruz, Mexico). **49)** *A. antonioreyi* new species (Centro Ceremonial Otomi env., México, Mexico).

densely, somewhat irregularly punctured, on disc longitudinally narrowly impunctate; larger punctures umbilicate, lateral ones shortly sparsely pubescent; lateral margins feebly arcuate, distinctly bordered, edge glabrous; hind angles obtusely rounded; base faintly bisinuate, distinctly bordered. Scutellum coarsely, irregularly punctured. Elytra oval, rather convex; epipleural carina subdenticulate at humerus; striae deep, strongly punctured, distinctly crenulate; intervals slightly convex, coarsely somewhat irregularly punctured; punctures subserially arranged on each side and with rather short recumbent hairs. Hind tibiae superior apical spur shorter than first tarsal segment; latter somewhat longer than following three combined. Male: unknown.

**Type material.** MEXICO, Oaxaca: 9.5 mi. E of Oaxaca (Km 80 RT. 175), 6000', 20.VIII.1973, leg. Newton, 1 ex. (**Holotype**, female, HAHC); Guelatao env., 18°29'08.7"N-96°30'13.7"W, m 2650, 10.VII.2002, leg. Dellacasa M. & Martínez I., horse dung, 2 ex. (**Paratypes**, females, DCGC).

**Distribution.** Mexico (Oaxaca).

**Etymology.** Named from the Mexican State of Oaxaca.

**Bionomics.** The two paratypes were collected in horse dung in July.

***Agrilinellus ornatus* (Schmidt, 1911) new combination**

(Fig. 24-32, 48)

*Aphodius ornatus* Schmidt, 1911: 14; Blackwelder, 1944: 213.

*Aphodius magnopunctatus* Hinton, 1934: 191; Blackwelder, 1944: 213; Skelley et al. 2007: 2 (as synonym of *Agrilinus ornatus*).

*Aphodius (Volinus) ornatus*; Schmidt 1913: 142; Schmidt 1922: 177.

*Aphodius (Chilothorax) ornatus*; Dellacasa 1988: 236.

*Aphodius (Agrilinus) magnopunctatus*; Dellacasa 1988: 108.

*Agrilinus ornatus*; Skelley et al. 2007: 2.

**Type locality.** Mexico.

**Type repository.** Naturhistoriska Riksmuseet, Stockholm. (Type examined)

**Description.** Length 3.0-4.0 mm; oblong, convex, shiny, almost glabrous. Blackish; clypeal margin and pronotal anterior angles pale brownish; elytra yellowish-brown with sutural margin piceous as well as the first interval on preapical declivity, and with a small subbasal quadrate spot and a longitudinal stripe on fourth interval often broadened posteriorly on the fifth interval, and sixth, seventh, eighth intervals with a common spot more or less widened (typical color pattern Fig. 25), or all spots joined up to form a large piceous discal spot (Fig. 26) or elytra basally and preapically yellowish (Fig. 27), or yellowish only preapically (Fig. 28), or entirely piceous (Fig. 29); legs more or less dark brown; antennal club testaceous. Head with epistome faintly gibbous on disc, coarsely rather irregularly punctured; clypeus feebly sinuate at middle, widely rounded at sides; genae rounded, shortly ciliate, feebly protruding more than eyes; frontal suture almost obsolete, somewhat raised only laterally; frons coarsely evenly punctured. Pronotum transverse, strongly convex, dually coarsely almost regularly punctured; large punctures, five times larger than small, scattered throughout; sides feebly arcuate, subparallel toward posterior angles, thinly bordered, edge glabrous; hind angles obtusely rounded; base distinctly bordered. Scutellum coarsely punctured on basal half. Elytra elongate, feebly widened posteriorly, not denticulate at humerus; striae deep, strongly punctured, moderately crenulate; intervals moderately convex, finely sparsely punctured, shortly sparsely pubescent on preapical declivity. Hind tibiae superior apical spur as long as first tarsal segment; latter shorter than following three combined. Male: fore tibiae apical spur relatively stouter and more bent downward; metasternal plate more concave, more distinctly punctured, with pubescent margins; aedeagus Fig. 30-31. Female: fore tibiae apical spur relatively more slender and almost straight; metasternal plate flattened, more sparsely punctured and glabrous.

**Material examined.** MEXICO, Distrito Federal: Contreras, 16.IX.1963, leg. Reyes P., 2 ex. (USNM); Durango: Km 125 carr. El Salto-Mazatlán, 23°45'20.6"N-105°31'17.0"W, m 2400, 20.VII.2004, leg. Dellacasa M. & Martínez I., 1 ex. (DCGC); Piedra Herrada; Res. Biosf. La Michilia, 14.VIII.1989, leg. Anduaga S., bosque Encino-Pino, excr. de vaca, 1 ex. (DCGC); Santa Martha, 3 Km ante, 19°04'58.1"N-99°43'48.2"W, m 2700, 25.VII.2004, leg. Dellacasa M. & Martínez I., horse dung, 7 ex. (DCGC); Hidalgo: Mineral del Chico, El Oyamel, 20°10'31.3"N-98°42'92.5"W, m 2887, 29.VI.2006, leg. Dellacasa M., Martínez I. & Fresi C., horse dung, 1 ex. (DCGC); México: carr. Santa Martha-Zempoala, 19°04'34.4"N-99°21'41.1"W, m 3048, 8.VII.2006, leg. Dellacasa M., Fresi C. & Martínez I., 18 ex. (DCGC); Centro Cerimonial Otomí



env., 19°31'24.8"N-99°32'14.1"W, m 2650, 23.VII.2004, leg. Dellacasa M. & Martínez I., sheep dung, 20 ex. (DCGC); Raices env., 19°09'44.9"N-99°48'17.9"W, m 3499, 8.VII.2006, leg. Dellacasa M., Martínez I. & Fresi C., sheep dung, 4 ex. (DCGC); Río Frío env., 22.VIII.1980, leg. Zunino M., 4 ex. (DCGC); Río Frío env., 19°21'00"N-98°40'10"W, 3.VI.2005, leg. Cabrero F. & Trotta N., 1 ex. (DCGC); *idem*, 19°20'37.7"N-98°40'28.8"W, m 2991, 8.VII.2005, leg. Dellacasa M., Martínez I., Cabrero F. & Trotta N., 1 ex. (DCGC); Salazar, 8.IX.1968, leg. Cabrera M., 1 ex. (DCGC); *idem*, m 3000, 12.X.1970, leg. Howden H. F., 5 ex. (CMNC); Real de Arriba, Temascaltepec [= Temascaltepec], 1933, 1 ex. (USNM); **Puebla**: carr. Puebla-Paso de Cortes, 19°05'20.5"N-98°36'25.1"W, m 3365, 14.VIII.2006, leg. Martínez I., Suarez S., Gonzalez O., Cabrero F. & Trotta N., 22 ex. (DCGC); San Miguel env., 19°04'43"N-97°19'43"W, m 3210, 27.VI.2006, leg. Dellacasa M. & Fresi C., horse dung, 16 ex. (DCGC); San Miguel Zuapan env., Pico de Orizaba, 19°04'33"N-97°20'15"W, m 3114, 27.VI.2006, leg. Dellacasa M. & Fresi C., 1 ex. (DCGC); *idem*, 19°04'33.9"N-97°20'25.9"W, m 3084, 19.VIII.2005, leg. Cabrero F. & Trotta N., sheep dung, 12 ex. (DCGC); San Nicolas de los Ranchos-Paso de Cortes, 19°05'50.5"N-98°36'51.0"W, m 3350, 10.VII.2006, leg. Dellacasa M., Martínez I. & Fresi C., cow dung, 6 ex. (DCGC); **Veracruz**: El Conejo env., 19°31'26.3"N-97°09'22.1"W, m 3375, 10.VII.2007, leg. Dellacasa M. & Fresi C., 3 ex. (DCGC); El Triunfo, cam. a Ayahualulco, 3.X.2000, leg. Pensado T., excr. borrego, 3 ex. (DCGC); Rancho Pextlán (Xico), 19°25'28.9"N-97°01'43.0"W, m 1465, 10.VIII.2006, leg. Martínez I., Gonzalez O. & Suarez T., 1 ex. (DCGC); San José Aguazuelas, El Plano, m 2600, 19°24'08"N-97°11'57"W, 25.IX.2002, leg. Martínez I. & Suarez T., 122 ex. (DCGC); San José Aguazuelas, El Triunfo-Xico, 3.X.2000, leg. Martínez I., 18 ex. (DCGC); Mpio. Coscomatepec, Cuiyachapa, 28.VI.1999, leg. Alvarado M., Cruz M. & Sosa J., 1 ex. (DCGC); *idem*, VI-VII, 1998, 11 ex. (DCGC); *idem*, 16.X.1998, 4 ex. (DCGC); *idem*, 8.XII.1998, 1 ex. (DCGC); Cuiyachapa, m 2700, 4.IX.2000, leg. Alvarado M., excr. caballo, 6 ex. (DCGC, PESC); Km 11 carr.- Cofre de Perote, m 3500, 16.VIII.1996, leg. Halffter G., potrero cerca del bosque de Pino, col. directa, borrego y cabra, 3 ex. (DCGC).

**Distribution.** Mexico (Distrito Federal, Durango, Hidalgo, México, Michoacán, Puebla, Veracruz).

**Bionomics.** A year-round generalist dung feeder found in cow, horse and sheep dung.

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