

## **MEXICAN WEEVILS (COLEOPTERA: CURCULIONOIDEA): A PRELIMINARY KEY TO FAMILIES AND SUBFAMILIES**

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### **RESUMEN**

Los gorgojos mexicanos (Coleoptera: Curculionoidea) pertenecen a las siguientes familias y subfamilias: Nemonychidae (Rhinorhynchinae), Anthribidae (Anthribinae y Choraginae), Belidae (Oxycoryninae), Attelabidae (Attelabinae y Rhynchitinae), Brentidae (Apioninae, Brentinae y Cyladinae), Dryophthoridae (Dryophthorinae, Rhynchophorinae y Orthognatinae), Eriirhinidae (Eriirhininae y Raymondionyminae) y Curculionidae (Entiminae, Thecesterninae, Cyclominae, Phytonominae, Curculioninae, Cryptorhynchinae, Zygopinae, Baridinae, Lixinae, Molytinae, Cossoninae, Scolytinae y Platypodinae). Se presenta una clave preliminar para identificar estas familias y subfamilias. Se incluyen también algunas notas, con el objeto de comparar la clasificación aquí seguida con las de autores previos.

**Palabras Clave:** Curculionoidea. familias, clave, México.

### **ABSTRACT**

Mexican weevils (Coleoptera: Curculionoidea) belong to the following families and subfamilies: Nemonychidae (Rhinorhynchinae), Anthribidae (Anthribinae and Choraginae), Belidae (Oxycoryninae), Attelabidae (Attelabinae and Rhynchitinae), Brentidae (Apioninae, Brentinae, and Cyladinae), Dryophthoridae (Dryophthorinae, Rhynchophorinae, and Orthognatinae), Eriirhinidae (Eriirhininae and Raymondionyminae), and Curculionidae (Entiminae, Thecesterninae, Cyclominae, Phytonominae, Curculioninae, Cryptorhynchinae, Zygopinae, Baridinae, Lixinae, Molytinae, Cossoninae, Scolytinae, and Platypodinae). A preliminary key to identify these families and subfamilies is presented. Some notes are also included, in order to compare the classification herein followed with those of previous authors.

**Key Words:** Curculionoidea. families, key, Mexico.

### **INTRODUCTION**

Weevils (Coleoptera: Curculionoidea), with 57,000 species and 6,000 genera described (Thompson, 1992), constitute one of the most diverse insect groups. According to Anderson & O'Brien (1996), they are particularly well-represented in

Mexico, with more than 2,300 known species. Some weevils are of economic importance, being pests of several plants, whereas others are potential biological control agents against different weeds. The higher classification of Curculionoidea has been the subject of much controversy, and there is little agreement among the different proposals (Schoenherr, 1826; Lacordaire, 1863; Sharp, 1889-1911; Champion, 1902-1911; Blackwelder, 1947; Crowson, 1955; Costa-Lima, 1956; Morimoto, 1962a, b; Kissinger, 1964; Muñiz, 1970; O'Brien & Wibmer, 1982; Wood, 1986, 1993; Thompson, 1992; May, 1993, 1994; Zimmerman, 1993, 1994a, b; Kuschel, 1995; Marvaldi, 1997). In a recent contribution (Morrone, 1998), I reviewed them and proposed a consensus phylogenetic classification.

My objective herein is to provide a key to identify the higher groups (families and subfamilies) of the Curculionoidea that have been reported for Mexico, based on adult and larval characters, basically using my classification (Morrone, 1998) as a framework. In preparing the key, I have taken into consideration relevant characters from previous contributions (Crowson, 1955; Costa-Lima, 1956; Morimoto, 1962a, b; Kissinger, 1964; Wood, 1986; Thompson, 1992; May, 1993, 1994; Zimmerman, 1994a, b; Kuschel, 1995). Detailed discussions and illustrations of adult characters can be found in Crowson (1955), Costa-Lima (1956), Kissinger (1964), Wood (1986), Thompson (1992), and Zimmerman (1993, 1994a, b). Larval characters are discussed and illustrated by May (1993, 1994) and Marvaldi (1997).

As stated by Kissinger (1964), identification of weevil taxa is not a simple matter, because of the huge number of species involved and the inherent taxonomic difficulties. Furthermore, the chaotic state of weevil taxonomy makes it sometimes difficult to understand the differences among the alternative classifications. This key should be considered as preliminary; however, I hope it will orientate those trying to understand the higher classification of the Mexican Curculionoidea.

#### **KEY TO FAMILIES AND SUBFAMILIES OF MEXICAN CURCULIONOIDEA**

- 1a. ADULTS. Antennae geniculate, with segments of the club tightly articulated; tarsal segment 2 rounded at apical angles. LARVAE. Frontal lines not extending to articulating membrane of mandibles; antennae contiguous with frontal suture; sensillum next to dorsoepicranial seta 2 absent; postoccipital condyles usually present; abdominal segments with 3-4 folds . . . 2
- 1b. ADULTS. Antennae straight, with at least two segments of the club loosely articulated; tarsal segment 2 projecting at apical angles. LARVAE. Frontal lines extending to articulating membrane of mandibles; antennae separated from frontal suture; sensillum next to

- dorsoepicranial seta 2 present; postoccipital condyles absent; abdominal segments usually with two folds . . . . . 20
- 2a. ADULTS. Antennae with club compressed into the last funicular segment 7, which is shiny and bare, distinct from the segments of the club; prementum not visible in ventral view; tarsal claws separated by dorsal and ventral dermal lobes; aedeagal pedon with lateral line or groove; aedeagal apodeme on line with aedeagal body in lateral view. LARVAE. Body expanded between abdominal segments 4-6 and narrowing abruptly to segment 9; abdominal pleura subdivided into superimposed lobes; spiracular airtubes of abdominal segments 1-7 dorsally directed . . . . . DRYOPHTHORIDAE<sup>1</sup> . . . . . 3
- 2b. ADULTS. Antennae with club normal; prementum visible in ventral view; tarsal claws not separated by dermal lobes; aedeagal pedon lacking lateral line or groove; aedeagal apodeme deflexed from aedeagal body in lateral view. LARVAE. Body not expanded; abdominal pleura not subdivided (except Curculionidae: Platypodinae); spiracular airtubes of abdominal segments 1-7 posterior or dorsoposteriorly directed . . . . . 5
- 3a. ADULTS. Pygidium exposed behind elytra. LARVAE. Epipharynx with five or more anterolateral setae . . . . . RHYNCHOPHORINAE
- 3b. ADULTS. Pygidium concealed beneath elytra. LARVAE. Epipharynx with three anterolateral setae . . . . . 4
- 4a. ADULTS. Antennae with funicle apparently 6-segmented; scutellum well-exposed; large species (length > 10 mm). LARVAE. Epipharynx and mala with tuft-like setae; abdominal segment 6 conspicuously smaller than 5 . . . . . ORTHOGNATINAE
- 4b. ADULTS. Antennae with funicle apparently 4-segmented; scutellum concealed; small species (length < 9 mm). LARVAE. Epipharynx and mala with branched setae; abdominal segment 6 slightly or not smaller than 5 . . . . . DRYOPHTHORINAE
- 5a. ADULTS. Rostrum usually deflexed ventrad from its base in lateral view; male sternite 8 with plate undivided, and spiculum gastrale shorter than the manubrium; aedeagus with narrow tectum or dorsal plate. LARVAE. Head relatively small in relation to body width; usually with conspicuous postoccipital condyles laterad, that can be seen from above; often adapted to freshwater habitats, e.g., with spiracles adapted for piercing aquatic plants to obtain oxygen, rarely endogean . . . . . ERIRHINIDAE<sup>2</sup> . . . . . 6
- 5b. ADULTS. Rostrum rarely deflexed ventrad from its base in lateral view (except Curculioninae: Tychiini); male sternite 8 with plate divided to form paired hemisternites, and spiculum gastrale larger than the manubrium; aedeagus lacking tectum or dorsal plate. LARVAE. Head of normal size in relation to body width; postoccipital condyles ventrad, that can be seen from above; usually terrestrial, with spiracles not adapted for piercing aquatic plants to obtain oxygen . . . . . CURCULIONIDAE<sup>3</sup> . . . . . 7
- 6a. ADULTS. Small to medium-sized (length > 3 mm); eyes present; wings present; femora and tibiae subcylindrical; aquatic or subaquatic . . . . . ERIRHININAE
- 6b. ADULTS. Very small (length < 2 mm); eyes absent; wings absent; femora and tibiae flattened; endogean . . . . . RAYMONDIONYMINAE

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- 7a. ADULTS. Rostrum very reduced to absent; at least one pair of tibiae with emergent denticles or socketed setae along or near dorsal edge; usually staying and feeding inside plant tissues after full development. LARVAE. Ocelli absent; mandibles usually ridged on molar area . . . . . 8
- 7b. ADULTS. Rostrum well-developed; tibiae lacking such denticles or socketed setae; not staying or feeding inside plant tissues after full development (except Cossoninae). LARVAE. Ocelli usually present; mandibles rarely ridged . . . . . 9
- 8a. ADULTS. Head narrower than pronotum; front margin of prothorax usually concealing large part of head from above; antennae with 5-7 funicular articles; metepisternum small, short; ventrites 1 and 2 fused; ventrite 2 longer than 3; tarsi not or hardly longer than tibiae, tarsal segment 1 subequal in length to 2 or 3; aedeagus with apodemes. LARVAE. Clypeus well-developed . . . . . SCOLYTINAE<sup>4</sup>
- 8b. ADULTS. Head as wide as pronotum; front margin of prothorax not concealing head from above; antennae with 2-5 funicular articles; metepisternum large, elongate; ventrites 1 and 2 usually free; ventrite 2 subequal or shorter than 3; tarsi considerably longer than tibiae; tarsal segment 1 usually longer than 2-5 combined; aedeagus lacking apodemes. LARVAE. Clypeus indistinct, reduced to a narrow band . . . . . PLATYPODINAE<sup>5</sup>
- 9a. ADULTS. Mandibles with deciduous process that leaves a scar when is shed; prementum covering maxillae (adelognathous). LARVAE. Antennal sensorium cushion-like, oval in apical view . . . . . ENTIMINAE<sup>6</sup>
- 9b. ADULTS. Mandibles lacking deciduous processes or scars; prementum not covering maxillae (phanerognathous). LARVAE. Antennal sensorium conical, circular in apical view . . . . . 10
- 10a. ADULTS. Tibiae not uncinatate or with imperfect unci on one pair of tibiae . . . . . 11
- 10b. ADULTS. All tibiae with well-developed unci . . . . . 14
- 11a. ADULTS. Rostrum longer than head, slender; species usually small (length usually < 10 mm) . . . . . 12
- 11b. ADULTS. Rostrum relatively short, stout; species medium-sized to large (length > 10 mm) . . . . . 13
- 12a. ADULTS. Scales of the body vestiture entire at apex; females place eggs endophytically in sites prepared with their mandibles. LARVAE. Frontal setae 4 longer than 5; usually endophytic . . . . . CURCULIONINAE<sup>7</sup>
- 12b. ADULTS. Scales of the body vestiture with truncate bifid or multifid apices; females place eggs ectophytically. LARVAE. Frontal setae 5 much longer than 4; ectophytic . . . . . PHYTONOMINAE<sup>8</sup>
- 13a. ADULTS. Rostrum shorter than head, received in repose into prosternal emargination in front of procoxae . . . . . THECESTERNINAE
- 13b. ADULTS. Rostrum as long as or slightly longer than head, not received in repose into prosternal emargination . . . . . CYCLOMINAE<sup>9</sup>
- 14a. ADULTS. Rostrum received in repose into deep, median pro- and mesosternal channel . . . . . 15

- 14b. ADULTS. Rostrum not received in repose into pro-and mesosternal channel (if channel present, only in prosternum) . . . . . 16
- 15a. ADULTS. Channel for the reception of rostrum with a cup-like ridge in the mesosternum; eyes medium-sized to small, not closely approximated on frons, partially covered by prothoracic postocular lobes when rostrum is in repose. LARVAE. Labral rods 'y'-shaped, with basal stem . . . . . CRYPTORHYNCHINAE
- 15b. ADULTS. Channel for the reception of rostrum lacking a cup-like ridge in the mesosternum; eyes very large (occupying a great surface of head), closely approximated on frons, not covered by prothoracic postocular lobes when rostrum is in repose. LARVAE. Labral rods not 'y'-shaped, lacking basal stem . . . . . ZYGOPINAE
- 16a. ADULTS. Mesepimeron strongly ascending, visible in dorsal view between prothorax and elytra. LARVAE. Head with a dark epicranial ridge on each side . . . . . BARIDINAE
- 16b. ADULTS. Mesepimeron not ascending, not visible in dorsal view. LARVAE. Head lacking dark epicranial ridge . . . . . 17
- 17a. ADULTS. Rostrum much shorter than prothorax; tibiae markedly uncinatae; pro- and mesotibiae lacking distal and ascending combs; body slender, depressed; usually staying or feeding inside plant tissues after full development, but also browsing on outside. LARVAE. Abdominal segment 9 with only two dorsal folds . . . . . COSSONINAE
- 17b. ADULTS. Rostrum longer than prothorax; tibiae normally uncinatae; pro- and mesotibiae with distal and ascending combs; body neither slender nor compressed; not staying or feeding inside plant tissues after full development. LARVAE. Abdominal segment 9 usually with three dorsal folds . . . . . 18
- 18a. ADULTS. Hind margins of pronotum angulate, produced posteriorly; pygidium exposed behind elytra; usually small (length < 10 mm). LARVAE. Endocarinal line absent; spiracles lacking airtubes. . . . . MAGDALININAE
- 18b. ADULTS. Hind margins of pronotum rounded, not produced posteriorly; pygidium concealed beneath elytra; usually medium-sized to large (length > 10 mm). LARVAE. Endocarinal line usually present; spiracles with airtubes . . . . . 19
- 19a. ADULTS. Body rarely subcylindrical; labial palpi normal. LARVAE. Abdominal segments 1-6 with five or fewer postdorsal setae; spiracles of abdominal segment 8 dorsal; cuticle microasperate in transverse linear series . . . . . MOLYTINAE<sup>10</sup>
- 19b. ADULTS. Body usually subcylindrical, elongate, and with sides relatively straight; labial palpi short, telescoping. LARVAE. Abdominal segments 1-6 with more than five postdorsal setae; spiracles of abdominal segment 8 lateral; cuticle not microasperate in transverse linear series . . . . . LIXINAE<sup>11</sup>
- 20a. ADULTS. Rostrum sexually not dimorphic, not used by females in oviposition site preparation; clypeolabral suture distinct; mandibles with mola, and lacking teeth on incisor area; maxillary palpi elongate, projecting antero-anterolad. LARVAE. Hypopharyngeal bracon with a complex median sclerome; maxillary articulatory lobes usually well-developed; legs usually present . . . . . 21

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- 20b. ADULTS. Rostrum sexually dimorphic (longer and more slender in females), used by females in oviposition site preparation; clypeolabral suture indistinct; mandibles lacking mola, and with teeth on incisor area; maxillary palpi short, not projecting. LARVAE. Hypopharyngeal bracon lacking sclerome; maxillary articulatory lobes absent; legs usually absent . . . . . 23
- 21a. ADULTS. Rostrum long, subcylindrical; antennae with scape short, not extending past front margin of eyes; prothorax lacking lateral carinae; notosternal suture distinct; all ventrites free; tergites 6 and 7 medially not grooved; pygidium not visible; spurs present on all tibiae; tarsal claws lacking tooth on inner edge; male tergite 8 exposed beyond tergite 7; male sternite 8 with plate divided to form paired hemisternites. LARVAE. Frons with 5 or fewer setae; frontoclypeal suture effaced; mandibles with diagonal masticatory ridge . . . . . NEMONYCHIDAE (RHINORHYNCHINAE)<sup>12</sup>
- 21b. ADULTS. Rostrum relatively short, flattened; antennae with scape long, extending past front margin of eyes; prothorax with lateral carinae; notosternal suture obsolete; only last 2 or 3 ventrites free; tergites 6 and 7 medially grooved; pygidium visible (at least in males); tibial spurs absent or vestigial; tarsal claws with tooth on inner edge; male tergite 8 concealed under tergite 7; male sternite 8 with plate undivided. LARVAE. Frons with more than 5 setae; frontoclypeal suture usually distinct (when effaced, frons not produced forward); mandibles lacking diagonal masticatory ridge. . . . . ANTHRIBIDAE<sup>13</sup> . . . . . 22
- 22a. ADULTS. Scrobes lateral or dorsolateral; antennae inserted laterally; antennal segments 1 and 2 more or less symmetrical; labial palpi 3-segmented. LARVAE. Abdominal spiracles bicameral; labial palpi 2-segmented; six Malpighian tubules . . . . . ANTHRIBINAE
- 22b. ADULTS. Scrobes dorsal; antennae inserted dorsally; antennal segments 1 and 2 asymmetrical, strongly arched; labial palpi usually 4-segmented. LARVAE. Abdominal spiracles unicameral; labial palpi usually 1-segmented; four Malpighian tubules . . . . . CHORAGINAE
- 23a. ADULTS. Maxillae with indistinct galea and lacinia; maxillary palpi 3 to 2-segmented; scutelar striole absent; ventrites 1 and 2 more convex and protruding than 3 in lateral view; ventrite 3 shorter than 2. LARVAE. Maxillary palpi 2-segmented; legs usually present . . . . . BRENTIDAE<sup>14</sup> . . . . . 24
- 23b. ADULTS. Maxillae with distinct galea and lacinia; maxillary palpi 4-segmented; scutelar striole present; ventrites 1 and 2 at the same level with 3 in lateral view; ventrites 2 and 3 of similar length. LARVAE. Maxillary palpi usually 3-segmented; legs absent . . . . . 26
- 24a. ADULTS. Body elongate, sides straight; usually large (length > 10 mm); scrobes foveiform; tibial spurs usually present; primary wood-borers in dead and dying trees, most xylomycetophagous. LARVAE. Head with five frontal setae; abdominal segment 7 with spiracle; legs 2-segmented . . . . . BRENTINAE
- 24b. ADULTS. Body pyriform or elongate, sides convex; usually very small (length < 5 mm); scrobes sulciform; tibial spurs absent; feed in live plant tissues (flowers, seeds, leaves, or

- roots). LARVAE. Head with 2-4 frontal setae; abdominal segment 7 lacking spiracle; legs absent . . . . . 25
- 25a. ADULTS. Body elongate; prothorax with basal constriction; mesothoracic suture between episternum and epimeron absent. LARVAE. Body strongly convex; anus bilobed . . . . .  
 . . . . . CYLADINAE
- 25b. ADULTS. Body pyriform; prothorax lacking basal constriction; mesothoracic suture between episternum and epimeron present. LARVAE. Body weakly curved; anus 4-lobed . . . . .  
 . . . . . APIONINAE
- 26a. ADULTS. Gular suture double; all ventrites free; female tergite 9 sclerotized; spermatheca reduced to absent, not pigmented. LARVAE. Head permanently retracted into thorax; epicranium deeply emarginate, lacking posterior extension; spiracles of abdominal segments 1-7 with a single airtube, posterior or dorsoposteriorly directed . . . . .  
 . . . . . BELIDAE (OXYCORYNINAE)<sup>15</sup>
- 26b. ADULTS. Gular suture simple; last two or three ventrites free; female tergite 9 membranous; spermatheca falciform, well pigmented. LARVAE. Head extrusible; epicranium rounded, with hyaline posterior extension; spiracles of abdominal segments 1-7 with paired airtubes, dorsally directed . . . . . ATTELABIDAE<sup>16</sup> . . . . . 27
- 27a. ADULTS. Mandibles robust; prementum broad, heavily chitinized, dentate at least at apical margin, labial palpi 2- or 1-segmented or absent; all tibiae lacking spurs, with large unci; tarsal claws fused basally. LARVAE. Maxillary palpi 2-segmented; labium with pigmented areas of prementum and mentum fused; thoracic spiracle situated on mesothorax or intersegmental fold; living into leaf rolls. . . . . ATTELABINAE
- 27b. ADULTS. Mandibles slender, thin; prementum narrow, moderately chitinized, not dentate, labial palpi 3- or 2-segmented; all tibiae with spurs, lacking unci (at least in females); tarsal claws separate. LARVAE. Maxillary palpi 3-segmented; labium with pigmented areas of prementum and mentum nor fused; thoracic spiracle situated on prothorax; living in varied habitats . . . . . RHYNCHITINAE

Notes

- 1 Dryophthoridae, commonly known by their junior synonym Rhynchophoridae, have been traditionally treated as a subfamily of Curculionidae (Blackwelder, 1947; O'Brien & Wibmer, 1982; Kuschel, 1995), but several authors considered them as a distinct family (Morimoto, 1962a, b; Thompson, 1992; Zimmerman, 1993; Morrone, 1998). They comprise four subfamilies: Rhynchophorinae, Orthognatinae (= Sipalininae), Dryophthorinae, and Stromboscerinae (Zimmerman, 1993); the three former are represented in Mexico.
- 2 Thompson (1992) and Zimmerman (1993) gave familial status to Eriirhinidae. They are quite similar to Curculionidae, where they have been usually assigned, as a subfamily or as a tribe of Curculioninae (Kuschel, 1995). They comprise three subfamilies: Eriirhininae, Tadiinae, and Raymondionyminae (Zimmerman, 1993; Morrone, 1998); the two former are represented in Mexico.

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- 3 In the last decades, there have been considerable changes concerning the suprageneric taxa included in Curculionidae, and several taxa have been promoted to separate families: Dryophthoridae (Morimoto, 1962a, b), Ithyceridae (Morimoto, 1976), Eriirhinidae (Thompson, 1992; Zimmerman, 1993), and Brachyceridae, Cryptolaryngidae, and Raymondionymidae (Thompson, 1992). Kuschel (1995) demoted dryophthorids and platypodids to subfamilies of Curculionidae, and merged several subfamilies within his subfamilies Brachycerinae and Curculioninae.
- 4 Scolytinae (the “bark beetles”) have been traditionally considered as a distinct family (Blackwelder, 1947; Wood, 1986), although there is now a consensus that they are members of the family Curculionidae (Crowson, 1955; Thompson, 1992; Kuschel, 1995; Marvaldi, 1997; Morrone, 1998).
- 5 Platypodinae (the “ambrosia beetles”) have been usually considered as a distinct family (Wood, 1986, 1993; Thompson, 1992; Zimmerman, 1994a; Morrone, 1998), although their treatment as subfamily of Curculionidae (Crowson, 1955; Kuschel, 1995; A. E. Marvaldi, pers. comm.) seems to be the most valid.
- 6 Entiminae (the “broad nosed weevils”) include the tribes Pachyrhynchini, Ectemnorhinini, Alophini, Sitonini, and Entimini (Marvaldi, 1998). The tribes Sitonini and Entimini are represented in Mexico.
- 7 Kuschel (1995) and Zimmerman (1994a) expanded the concept of Curculioninae, by demoting several traditional curculionid subfamilies to tribes of it: Anthonomini, Bradybatini, Camarotini, Ceratopodini, Ceutorhynchini, Cionini, Coeliodini, Curculionini, Derelomini, Eugnomini, Geochini, Gymnetrini, Hypurini, Mechistocerini, Mononychini, Nerthopini, Prionomerini, Pyropini, Rhamphini (= Rhynchaenini), Scleropterini, Smicronychini, Storeini, Tachygonini, Tychiini, Viticiini, and Xiphaspidini. The tribes Anthonomini, Bradybatini, Camarotini, Ceratopodini, Ceutorhynchini, Curculionini, Derelomini, Eugnomini, Prionomerini, Rhamphini, Smicronychini, Storeini, Tachygonini, and Tychiini are represented in Mexico.
- 8 Phytominae are usually known by their junior synonym Hyperinae.
- 9 Cyclominae include the tribes Amycterini, Aterpini, Cyclomini (= Hipporhinini), Diabathrariini, Gonipterini, Haplopodini, Rhytirrhinini, and Somatodini (Morrone, 1997). Only the tribe Rhytirrhinini is represented in Mexico.
- 10 Molytinae in its present sense is the result of combining several subfamilies (Kuschel, 1987; Thompson, 1992; Morrone, 1998; C. W. O'Brien, pers. comm.). It includes the tribes Trypetidini, Juanorhinini, Phoenicobatini, Petalochilini, Emphyastini, Amalactini, Mecysolobini, Paipalesomini, Lepyrini, Cholini, Conotrachelini, Molytini (=Hylobiini), Pissodini, Acicnemidini, Cycloterini, Nettarehinini, Pacholenini, Lithinini, Ithyporini, Erodiscini, Euderini, Styanacini, Phrynixini, Anchonini, Lymantini, Cleogonini, Sternechini, Guioperini, Omophorini, Galloisiini, Haplonychini, Dinomorphini, and Bagoiini. The tribes Amalactini, Cholini, Molytini, Pissodini, Lithinini, Conotrachelini, Cleogonini, Sternechini, Guioperini, Anchonini, Lymantini, Cycloterini, Bagoiini, and Erodiscini are represented in Mexico (Morrone, 1999).
- 11 Lixinae are usually known by their junior synonym Cleoninae.



- 12 Nemonychidae comprise three extant subfamilies: Doydirhynchinae, Nemonychinae, and Rhinorhynchinae (Kuschel, 1995); only the latter is represented in Mexico.
- 13 Anthribidae (the "fungus weevils") comprise three subfamilies: Anthribinae, Choraginae, and Urodontinae (Kuschel, 1995); the two former are represented in Mexico.
- 14 The original concept of Brentidae was expanded by several authors (Morimoto, 1976; Thompson, 1992; Kuschel, 1995) to include also the Eurhynchinae, Cyladinae, Apioninae, Nanophyinae, and Antliarhininae. Zimmerman (1994b), however, preferred to give separate familial status to Eurhynchidae, Apionidae, and Antliarhinidae. Brentinae, Cyladinae, and Apioninae are represented in Mexico.
- 15 Belidae comprise three subfamilies Aglyciderinae, Belinae, and Oxycoryninae (Kuschel, 1995); only Oxycoryninae are represented in Mexico.
- 16 Attelabidae (the "leaf-rolling weevils") comprise two subfamilies: Attelabinae and Rhynchitinae (Kuschel, 1995), both represented in Mexico.

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